139-307

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1890.

No. 219.

ANDREW J. DAVIS, APPELLANT,

vs.

HENRY WEIBBOLD.

APPEAL FROM THE SUPREME COURT OF THE TERRITORY OF MONTANA.

FILED OCTOBER 13, 1887.

REFERENCES.

See affidavit of Patrick Manning in motion papers previously filed, pages 1 and 2; also appointment in State court, pages 3, 4, and 5 of previous motion papers.

State *vs.* Williamson, 72 Wisconsin,

State *vs.* Wentler, 76 Wisconsin,

Respectfully submitted.

RUBLEE A. COLE,
Counsel for Plaintiff in Error.

139-507

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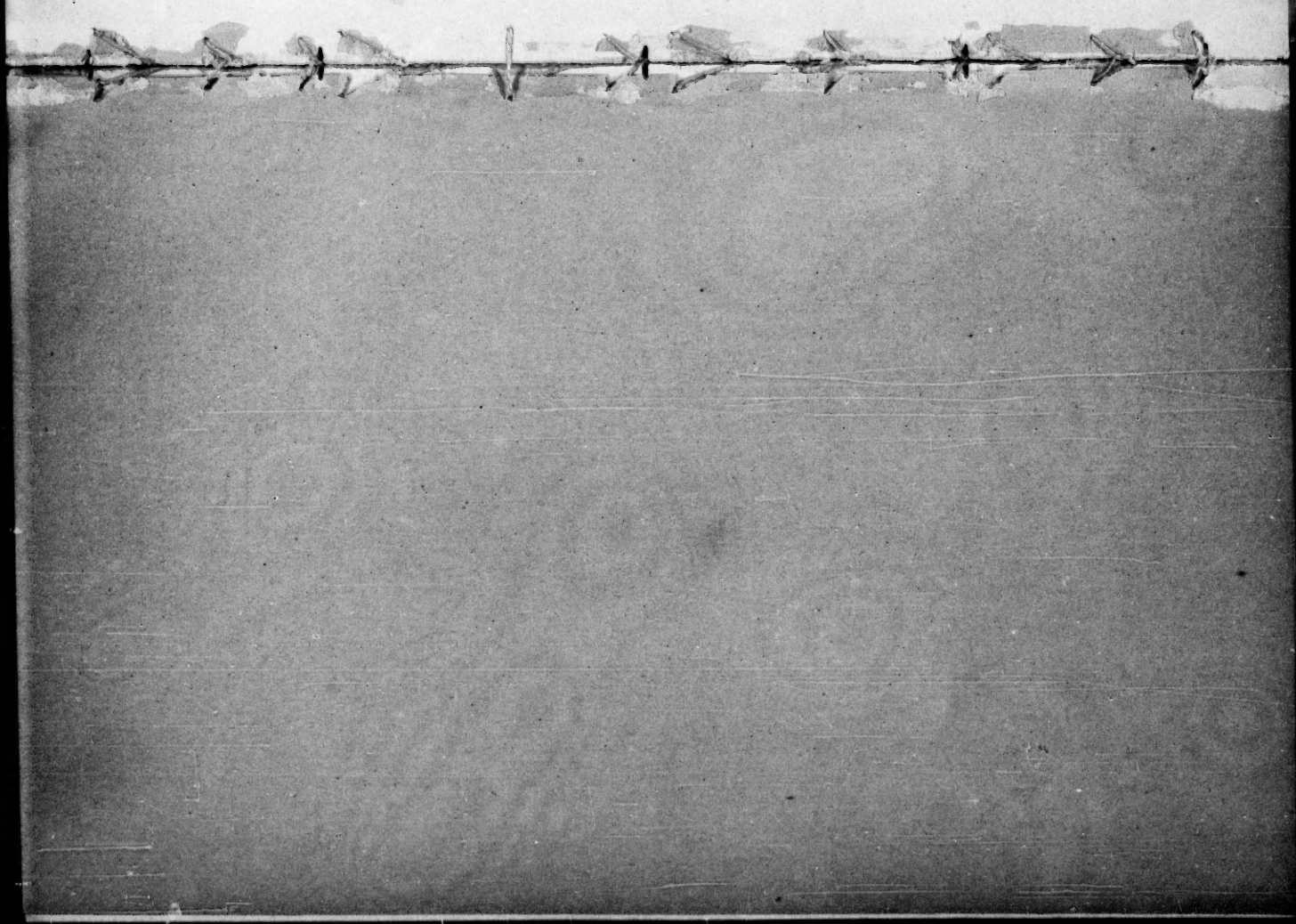

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1 (*Substituted Complaint.*)

In the District Court of the Second Judicial District, Silver Bow County, Montana Territory.

HENRY WIEBBOLD
vs.
ANDREW J. DAVIS, MAGNUS A. KROON, ALICE L. STEELE, Alexander Scott, Charles B. Beehrer, James A. Murray, William Read, H. D., Frank Carroll, Gus. Meyer, Edward J. Harris, Mrs. — Spencer, Joseph —, The Miners' Union, Wm. R. Kenyon, Emanuel Houswirth, Mrs. — Long, M. L. Holland, Mrs. — Martto, D. Dauserault, A. J. Dusseau, Daniel Sullivan, Mrs. — Vischer, Michael McCormick, Patrick J. Hughes, B. M. Anderson, C. Selter, Frank Goddard, — Caff, William H. Kendall, T. Ferrier, Thomas Butler, Austin Morley, Daniel Johnston, Joe Johnston, Thomas Allen, David McLin, Alexander H. Sey, John C. Cook, John B. Wampler, Edwin H. Irvine, Orville B. O'Bannon, Timothy Kennedy, S. B. Larmour, Frederick S. De Wolfe,
2 Elmira Noyes, Henry D. Hauser, Milo French, Joel A. Harrington, Henry S. Price, Hattie Gordon, Thomas Driscoll, Mary B. Cline, Robert C. Knox, Oren Emerson, John Doe, Defendants.

Now comes the above named plaintiff and, the permission of the court being first had and obtained, files this his substituted complaint here, and, for cause of action against the above-named defendants, plaintiff alleges—

1st. That the Christain names of the said def'ts not heretofore stated are unknown to plaintiff, and asks that they may be inserted when ascertained by the return of the officer serving the summons herein.

2nd. That the Miners' Union is a corporation duly organized under the laws of Montana Territory.

3rd. That Robert C. Knox is the duly qualified and acting probate judge of Silver Bow county, Montana Territory, and Oren Emerson of Deer Lodge county, Montana Ter., at the date of the trespass hereinafter mentioned.

3 4th. That on or about the 15th day of January, 1881, plaintiff was the owner of and entitled to the possession of the following-described property, in Silver Bow county, formerly Deer Lodge county, Montana Territory, to wit: That certain quartz lode known as the Gold Hill Lode mining claim, situate in Summit Valley mining district, county and Territory aforesaid, and more particularly described as follows, to wit: Beginning at the southwest corner of the claim, an iron bar one and one-quarter of an inch in diameter driven in the ground at the intersection of Quartz and Main street-, in the town of Butte, from which the southeast corner of J. H. Leffler's house bears, with magnetic variation of twenty degrees east, north for-y-five degrees fifteen minutes west at the distance of sixty-

nine feet, the northeast corner of W. Park's house bears south fifty-four degrees for-y-five minutes west at the distance of thirty-
4 nine feet, the northwest corner of a carpenter's shop bears south fifty-nine degrees fifteen minutes east at the distance of sixty feet, and the southwest corner of a house bears north forty-five degrees fifteen minutes east at the distance of eighty-seven feet; thence from said corner north six degrees west two hundred and seventy-two feet to a shaft, three hundred and forty feet to corner number 2, a post four inches square in a mound of stone marked "M. C. 65–2," from corner number two of lot number forty-three, patented to Charles S. Warren with his claim upon the Woolman lode, bears, with magnetic variation eighteen degrees forty minutes east, north twenty-nine degrees forty-five minutes east at the distance of three hundred and eighty-three feet the southeast corner of No. 39, patented to William A. Clark with his claim on the original lode, bears north fifty-five degrees
5 thirty minutes east at the distance of four hundred and sixteen feet, a shaft bears south eighty degrees east at the distance of three hundred and thirty-one feet, and a shaft bears south seventy-nine degrees thirty minutes east at the distance of four hundred and six feet; thence from said corner No. 2 south eighty-seven degrees forty-five minutes east forty-six feet to east side of Main street, one hundred and ten feet to road, four hundred and ninety-four feet to west side of Wyoming street, six hundred feet to a small gulch, seven hundred and two feet to a road, eight hundred feet to Town gulch, one thousand and thirty-five feet to east boundary of Butte town site, eleven hundred and forty-two feet to corner No. 3, a post four inches square in mound of stone marked "M. C. 63–3," from which the corner to section- seven, twelve, thirteen, and
6 eighteen, in township No. 3 north of range 8 west of the principal meridian, bears, with magnetic variation at nineteen degrees forty-five minutes east, north forty-one degrees fifteen minutes east at the distance of eleven hundred and eighty-six feet; thence from said corner south seventy-seven degrees east three hundred and eighteen feet to corner No. 4, a post four inches square in mound of stone marked "M. C. 65–4;" thence, with magnetic variation at nineteen degrees thirty minutes east, south six degrees east fifty-four feet to corner No. 5, a post four inches square in mound of stone marked "M. C. 65–5," from which the southwest corner of lot No. 45, a patented claim to Dennis Leary *et al.* with their claim upon the Parrott lode, bears north fifty-one degrees east at the distance of three hundred and thirty-five feet, and corner No. 3 of lot No. 63, made for the claim of Andrew J. Davis
7 upon the Baltic lode, bears south thirty-nine degrees fifteen minutes east at the distance of four hundred and twenty-five feet; thence from said corner 5 eighty degrees forty-five minutes west four hundred and thirty-three feet to east boundary of Butte town site, five hundred and ninety-seven feet to corner No. 6, a post four inches square in mound of stone marked "M. C. 65–6;" thence, with magnetic variation of nineteen degrees forty minutes east, south eighty-five degrees west ten feet to road and seventy feet to east side

of Wyoming street and east end of Quartz street, eight hundred and thirty-four feet to the place of beginning, containing seven acres and $\frac{60}{100}$ths of an acre of land and embracing 1,460 linear feet of the said Gold Hill lode.

6th. That on or about the 1st day of June, A. D. 1881, the said def'ts and each of them, while pl't'ff was so the owner of and
8 entitled to the possession, wrongfully and unlawfully and without plaintiff's knowledge or consent entered into the possession of said property and now with-old the same from the plaintiff, to his damage in the sum of five thousand dollars *damage.*

7th. That the rents and profits of said property during said time amount to the sum of and are of the reasonable value of ten thousand dollars, and to said amount pl't'f was damaged.

Wherefore pl't'f asks that he be adjudged the owner and entitled to the possession of said property, for damages in the sum of fifteen thousand dollars, and for his costs herein expended.

THOS. L. NAPTON,
Att'y for Pl't'f.

(Verified.)

I hereby agree that the foregoing is the complaint in the above action upon which the above cause was tried.

THOS. L. NAPTON,
Att'y for Pl't'f.

9 And thereafter, on the 25th day of January, 1886, the defendant Andrew J. Davis filed in said action his separate answer, which was in the words and figures following, to wit:

(*Answer.*)

(Title of Court and Cause.)

"Now comes the above-named defendant, Andrew J. Davis, and, for a separate answer to plaintiff's complaint, denies that on the 15th day of January, 1881, or at any other time the plaintiff was the owner of or seized in fee or entitled to the possession of that portion of that quartz lode mining claim known as the Gold Hill situate in Summit Valley mining district and more particularly described in plaintiff's complaint, which is known and designated as lots one (1), two (2), three (3), four (4), five (5), six (6), seven (7), and the north half of lot eight (8), lots twenty-eight (28), twenty-
10 nine (29), thirty (30), thirty-one (31), thirty-two (32), thirty-three (33), thirty-four (34), and the north twenty-five feet of lots twenty-one (21), twenty-two (22), twenty-three (23), twenty-four (24), twenty-five (25), twenty-six (26), and twenty-seven (27), all in block thirteen (13), in Butte City, Silver Bow county, Montana Territory, said lots and block being lots and a block in the Butte town site, and the same being numbered according to the official survey of the said Butte town site, now on file in the recorder's office at Deer Lodge, Deer Lodge county, Montana Territory.

Defendant hereby disclaims any right, title, or possession of, in, and to any and all portions of the premises described in pl'ff's complaint save and except the lots above described.

Defendant denies that while plaintiff was the owner of said premises in his complaint described he entered upon the same or
11 any portion thereof; denies that he entered upon the lots above described, without any right or title to the same, and ousted or ejected pl'ff therefrom on or about the 1st day of June, 1881, or at any other time.

Def't denies that the value of the rents, issues, or profits of said lots or the rents, issues, or profits thereof since the date of the said alleged entry have been ten thousand dollars, or any sum whatever, or that the said rents, issues, or profits or all of them will be or has been five thousand dollars per year or any sum per year.

And for a further and a separate defense defendant sets forth that the action of plaintiff in this case is barred by the provisions — section 30 of the 1st division of the Code of Civil Procedure for Montana Territory, laws of 1879.

And for a further and a separate defense defendant sets forth that he and those under whom he claims have been for more than
12 five years last past, to wit, since 1877, in the possession of the aforesaid lots under a claim of title founded upon a written conveyance thereof, exclusive of any other right, and that he has been in the exclusive possession of said premises since said date of 1877, he and his grantors.

Wherefore defendant asks that he may be sent hence with his costs.

KNOWLES AND FORBIS,
Att'ys for Def't Davis."

(Verified.)

And thereafter, on the 16th day of March, 1886, the plaintiff filed his reply to the separate answer of the defendant, Andrew J. Davis, which was in the words and figures following, to wit:

(*Reply to Separate Answer of A. J. Davis.*)

(Title of Court and Cause.)

"Now comes the pl't'f, and, for reply to the separate answer of def't Davis, denies, 1st, that his action is barred by the provisions of section 30 of the 1st division of the Code of Civil Procedure
13 of Montana Territory of 1879, or by any provision of any code at any time whatsoever.

Pl't'f further denies that def't has been in the possession of said property mentioned in his answer or any part of it otherwise than as stated in pl't'f-' complaint, and pl't'f particularly denies that he has owned or been in possession of or entitled to the possession of the same or any part of it for the period of five years, or for any greater length of time than as stated in pl't'f's complaint.

Plt'ff denies that defendant owns or is entitled to the possession of same or any part of it except as stated in reference to possession in his complaint.

P'l'ff asks judgment as requested in his complaint.

THOS. L. NAPTON,
Att'y for Pl't'f."

(Verified.)

14 And on the 20th day of March, 1886, said defendant filed in said action his bill of exceptions, which was in the words and figures, following, to wit:

(*Bill of Exceptions.*)

(Title of Court and Cause.)

Be it remembered that upon the trial of this cause the plaintiff offered in evidence the patent to the Gold Hill lode, which is in words and figures as follows, to wit:

To all to whom these presents shall come, Greeting:

Whereas, in pursuance of the provisions of the Revised Statutes of the United States, chapter six, title 32, there have been deposited in the General Land Office of the United States the plat and field-notes of survey of the claim of Heinrich C. Wiebbold upon the Gold Hill lode, accompanied by the certificate of the register of the land office at Helena, in the Territory of Montana, whereby it appears that in pursuance of the said Revised Statutes of the United States, Henry C. Wiebbold did, on the nineteenth
15 day of September, A. D. 1878, enter and pay for said mining claim or premises, being mineral entry No. 438 in the series of said office designated by the surveyor general as lot No. 65, embracing a portion of township three (3) north of range eight west of the principal meridian, in the Summit Valley mining district, in the county of Deer Lodge and Territory of Montana, in the district of land subject to sale at Helena, containing seven (7) acres and sixty-hundredths of an acre of land, more or less, and, according to the returns on file in the General Land Office, bounded, described, and platted as follows, with magnetic variation at as hereinafter stated: Beginning at the southwest corner of the claim, an iron bar one and one-fourth (1¼) of an inch in diameter driven in the ground at the intersection of Quartz and Main streets, in the town of Butte, from which the southeast corner of J. H. Leffler's house bears,
16 with magnetic variations at twenty (20) degrees east, north forty-five (45) degrees fifteen (15) minutes west at the distance of sixty-nine (69) feet, the northeast corner of W. Park's house bears south fifty-four (54) degrees forty-five (45) minutes west at the distance of thirty-nine feet, the northwest corner of a carpenter's shop bears south fifty-nine (59) degrees fifteen minutes east at the distance of sixty (60) feet, and the southwest corner of a house bears north

forty-five (45) degrees fifteen (15) minutes east at the distance of eighty-seven (87) feet; thence from said corner No. 1 north six (6) degrees west two hundred and seventy-two (272) feet to a shaft, three hundred and forty (340) feet to a corner No. 2, a post four (4) inches square in mound of stone marked "M. C. 65, 2," from which corner No. 2 of lot No. 43, patented to Charles S. Warren with his claim upon the Woolman lode, bears, with magnetic variation at eighteen (18) degrees forty-five (45) minutes east, north twenty (20) degrees forty-five minutes east at the distance of three hundred and eighty-three (383) feet; the southeast corner of lot No. 39, patented to William A. Clark with his claim upon the original lode, bears north fifty-five (55) degrees thirty (30) minutes east at the distance of four hundred and sixteen (416) feet; a shaft bears south eighty (80) degrees east at the distance of three hundred and thirty-one (331) feet, and a shaft bears south seventy-nine (79) degrees thirty (30) minutes east at the distance of four hundred and six (406) feet; thence from said corner No. 2 south eighty-seven (87) degrees forty-five (45) minutes east forty-six (46) feet to east side of Main street, one hundred and ten (110) feet to road, four hundred and ninety-four (494) feet to the west side of Wyoming street, six hundred (600) feet to small gulch, seven hundred and ten (710) feet to Town gulch, one thousand and thirty-five (1,035) feet to east boundary of Butte town site, eleven hundred and forty-two (1,142) feet to corner No. 3, a post four (4) inches square in mound of stone marked "M. C. 65, 3," from which the corner common to section- seven (7), twelve (12), thirteen (13), and eighteen (18), in township three (3) north of range eight (8) west of the principal meridian, bears, with magnetic variation at nineteen (19) degrees forty-five minutes east, north forty-one (41) degrees fifteen minutes east at the distance of eleven hundred and eighty-six (1,186) feet; thence from said corner No. 3 south seventy-seven degrees thirty minutes east three hundred and eighteen (318) feet to corner No. 4, a post four (4) four inches square in mound of stone marked "M. C. 65, 4;" thence, with magnetic variation at nineteen (19) degrees thirty (30) minutes east, south six (6) degrees east fifty-four (54) feet to corner No. 5, a post four (4) inches square in mound of stone marked "M. C. 65, 5," from which the southwest corner of lot No. 45 A, patented to Dennis Leary *et al.* with their claim upon the Parrott lode, bears north fifty-one (51) degrees east at the distance of three hundred and thirty-five (335) feet, and corner No. 3 of lot No. 63, made for the claim of Andrew J. Davis upon the Baltic lode, bears south thirty-nine (39) degrees fifteen (15) minutes east at the distance of four hundred and twenty-five (425) feet; thence from said corner No. 5 south eighty (80) degrees forty-five (45) minutes west four hundred and thirty-three feet to east boundary of Butte town site, five hundred and ninety-seven (597) feet to corner No. 6, a post four inches square in mound of stone marked "M. C. 65, 6;" thence, with magnetic variation at nineteen (19) degrees forty-five (45) minutes east, south eighty-five (85) degrees west ten feet to road, two hundred and seventy (270) feet to east side of Wyoming street and east end of Quartz

street, eight hundred and thirty-four (834) feet to the place of
20 beginning, containing seven acres and sixty-hundredths ($\frac{60}{100}$) of an acre of land, more or less, and embracing fourteen hundred and sixty (1,460) linear feet on the said Gold Hill lode, as represented by yellow shading in the following plat.

(The plat by agreement is here omitted.)

Now, know ye that the United States of America, in consideration of the premises and in conformity with the said Revised Statutes of the United States, have given and granted, and by these presents do give and grant, unto the said Heinrich C. Wiebbold and to his heirs and assigns the said mining premises hereinbefore described as lot No. 65, embracing a portion of township three (3) north of range eight (8) west of the principal meridian, with the exclusive right of possession and enjoyment of all the land included within the exterior lines of said survey not herein expressly excepted from these presents and of fourteen hundred and sixty (1,460) linear feet
21 in the said Gold Hill vein, lode, ledge, or deposit for the length hereinbefore described throughout its entire depth, although it may enter the land adjoining and also all other veins, lodes, ledges, or deposits throughout their entire depth, the tops or apexes of which lie inside the exterior lines of said survey at the surface, extended downward vertically, although such veins, lodes, ledges, or deposits in their downward course may so far depart from a perpendicular as to extend outside the vertical side lines of said survey: Provided that the right of possession hereby granted to such outside parts of said veins, lodes, ledges, or deposits shall be confined to such portions thereof as lie between vertical planes drawn downward through the end lines of said survey at the surface, so continued in their own direction that such vertical planes will intersect such exterior parts of said veins, lodes, ledges, or deposits, excepting and exclud-
22 ing, however, from these presents all town property rights upon the surface, and there are expressly excepted and excluded from the same all houses, buildings, structures, lots, blocks, streets, alleys, or other municipal improvements on the surface of the above-described premises not belonging to the grantee herein, and all rights necessary or proper to the occupation, possession, and enjoyment of the same: And provided, further, that nothing in this conveyance shall authorize the grantee herein, his heirs or assigns, to enter upon the surface of a mining claim owned or possessed by another; to have and to hold said mining premises, together with all the rights, privileges, immunities, and appurtenances of whatsoever nature thereunto belonging, unto said Heinrich C. Weibbold and to his heirs and assigns forever, subject, nevertheless, to the following conditions and stipulations:

First. That the grant hereby made is restricted to the land
23 hereinbefore described as lot No. 65, with fourteen hundred and sixty (1,460) linear feet of the Gold Hill, throughout its entire depth as aforesaid, together with all other veins, lodes, ledges, or deposits throughout their entire depth as aforesaid, the tops or apexes of which lie inside the exterior lines of said survey.

Second. That the premises hereby conveyed, with the exception

of the surface, may be entered by the proprietor of any other vein, lode, ledge, or deposit the top or apex of which lies outside the exterior limits of said survey, should the same in its downward course be found to penetrate, intersect, extend into, or underlie the premises hereby granted, for the purpose of extracting and removing the ore from such other vein, lode, ledge, or deposit.

Third. That the premises hereby conveyed shall be held subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes, rights to ditches and res-
24 ervoirs used in connection with such water rights as may be recognized and acknowledged by the local laws, customs, and decisions of courts.

Fourth. That in the absence of necessary legislation by Congress the Legislature of Montana may provide rules for working the mining claim or premises hereby granted involving easements, drainage, and other necessary means to its complete development.

In testimony whereof I, Rutherford B. Hayes, President of the United States of America, have caused these letters to be made patent and the seal of the General Land Office to be hereto affixed.

Given under my hand, at the city of Washington, the fifteenth day of January, in the year of our Lord one thousand eight hundred and eighty, — Independence of the United States the one hundred and fourth.

By the President:

R. B. HAYES,
By WM. H. COOK, *Secretary.*

S. W. CLARK,
Recorder of Gen. Land Office.

25 To the introduction of this patent defendant, by his counsel, then and there objected for the reason the exception contained in such patent excluded all town lots from the grant thereby made, and that it is necessary for plaintiff to show that the property in controversy was not town lots on the Gold Hill Lode claim which were excepted from said grant; that they were not town lots within the city of Butte, county of Silver Bow, Montana Territory, which were excluded by the terms of said patent from said grant; which objections the court overruled and permitted the plaintiff to introduce said patent in evidence, which was done. To the above ruling and to the admission of said patent in evidence defendant, by his counsel, then and there excepted and asks the court to sign this his bill of exceptions, which is done.

(Signed) WM. J. GALBRAITH, *Judge.*

26 The plaintiff then offered in evidence the letters of administration of the estate of said Heinrich C. Wiebbold, and conveyances showing whatever title the said Wiebbold had to the Gold Hill lode was in plaintiff, and also evidence of the value of the rents, issues, and profits of the premises in dispute, and rested his case.

(Signed) WM. J. GALBRAITH, *Judge.*

And thereafter, on the 20th day of March, 1886, said defendant filed his bill of exceptions, which was in the words and figures following, to wit:

Bill of Exceptions.

(Title of Court and Cause.)

"Be it remembered that on the trial of this cause the defendant offered in evidence, first, the patent to the Butte town site to Orville B. O'Bannon, in trust for the occupants of the Butte town site, and a deed from the said O'Bannon, as trustee, to Andrew J. Davis
27 to the premises in controversy, as set forth in defendant's answer, which patent and deed were as follows, to wit:

(*Certificate No.* 610.)

To all to whom the- presents shall come, Greeting:

Whereas Orville B. O'Bannon, probate judge of Deer Lodge county, Montana Territory, in trust for the use and benefit of the occupants of the town site of Butte, in said county, according to their respective interests by virtue of the act of Congress of March 2nd, 1867, entitled 'An act for the relief of the inhabitants of cities and towns upon the public lands,' has deposited in the General Land Office of the United States a certificate of the register of the land office at Helena, Montana Territory, whereby it appears that full payment has been made by the said Orville B. O'Bannon, probate judge as aforesaid, in trust as aforesaid, according to the provisions of the act of Congress of the 24th of April, 1820, entitled 'An act making further provisions for the sale of public lands,' for
28 the following-described tract of land, to wit: Beginning at corner number one, at a post four inches square in mound of stone at the southeasterly corner of the town site, marked 'T. S. C. I.,' thence, with magnetic variation at twenty degrees fifteen minutes east, north nineteen chains and fifty links to corner number two, a post four inches square in mound of earth marked 'T. S. C. 2;' thence east eight chains and sixteen links to corner No. 3, a post four inches square in mound of earth marked 'T. S. C. 3;' thence, with magnetic variation at nineteen degrees thirty minutes east, north thirteen chains and fifty links to a street eighty feet wide, seventeen chains to a point from which quartz mill bears east at the distance of one chain, eighteen chains to a small ravine, eighteen chains and fifty links to a point at center of easterly end of street, nineteen chains to a point from which a mining shaft bears east at the distance of fifteen links, twenty-seven chains and
29 fifty links to corner number four, a post four inches square in a mound of stones marked 'T. S. C. 4;' thence west two chains and fifty-five links to a gulch, twenty-one chains and five links to a gulch and road, thirty-four chains and fifty links to top of conical-shaped hill, forty-two chains and thirty-one links to corner number five, a post four inches square in mound of stones marked 'T. S. C. 5;' thence, with magnetic variation eighteen degrees and

fifty minutes east, south forty-seven chains to corner number six, a post four inches square in mound of stones at cropping of quartz on the Cyaromat lode, marked 'T. S. C. 6,' from which the corner common to sections thirteen, eighteen, nineteen, and twenty-four, in township three north of ranges eight and nine west of the principal meridian, bears south eighty-six degrees forty-one minutes west at the distance of four hundred and twenty-three chains and forty-eight links; thence from said corner number six, with mag-
30 netic variation at nineteen degrees twenty minutes east, east one chain and sixty links to road, nine chains and ten links to small ravine, fifteen chains and sixty links to a street one hundred feet wide, twenty chains and thirty-five links to small ravine, thirty-one chains and fifty links to a street eighty feet wide, thirty-four chains and thirty links to the place of beginning, in the district of lands subject to sale at Helena, Montana Territory, containing one hundred and eighty-three acres and eighty-three hundredths of an acre, according to the official plat of the survey of the said lands returned to the General Land Office by the surveyor general, which said tract has been purchased by the said Orville B. O'Bannon, probate judge as aforesaid, in trust as aforesaid:

Now, know ye, that the United States of America, in consideration of the premises and in conformity with the several acts of
31 Congress in such case made and provided, have given and granted, and by these presents do give and grant, unto the said Orville B. O'Bannon, probate judge as aforesaid, in trust as aforesaid, and to his successors the said tract above described; to have and to hold the same, together with all the rights, privileges, immunities, and appurtenances of whatsoever nature thereunto belonging, unto the said Orville B. O'Bannon, probate judge as aforesaid, in trust as aforesaid, and to his successors and assigns in trust as aforesaid. No title shall be hereby acquired to any mine of gold, silver, cinnabar, or copper or to any valid mining claim or possession held under existing laws of Congress.

In testimony whereof I, Rutherford B. Hayes, President of the United States of America, have caused these letters to be made patent and the seal of the General Land Office to be hereunto affixed.

Given under my hand, at the city of Washington, the
32 twenty-sixth day of September, in the year of our Lord one thousand eight hundred and sixty-seven, and of the
[SEAL.] Independence of the United States the one hundred and second.

By the President:

R. B. HAYES,
By B. LANG, *Secretary.*

(Recorded, vol. 5, page 92.

S. W. CLARK,
Recorder of General Land Office.")

This indenture, made this 24th day of March, A. D. 1877, by and between Orville B. O'Bannon, probate judge of Deer Lodge county,

Montana Territory, of the first part, and Andrew J. Davis, of the said county and Territory, of the second part, witnesseth :

That whereas the site of the town of Butte, in Deer Lodge county, Montana Territory, has been duly entered by the said probate judge at the United States land office at Helena, in the said Territory, in pursuance of the act of Congress in such case made and provided ;

And whereas a portion of the lots in said town site were
33 regularly pre-empted and conveyed by the said probate judge to the parties entitled thereto, and there remained thereafter a portion of the said town lots unclaimed after the expiration of sixty days, including the property hereinafter conveyed ;

And whereas, in pursuance of the act of the Legislature of Montana Territory relating to the pre-emption of town sites and the disposal of lots therein, the said probate judge gave the required notice more than ten days before the day of sale that he would sell at public sale certain of said lots remaining unclaimed as above stated, and including the property hereinafter conveyed, on the 12th day of March, 1877 ;

And whereas, in pursuance of said notice, the property hereinafter conveyed was on the 12th day of March, A. D. 1877, duly offered at public sale, and no bid having been received therefor and the property so offered being thereby rendered subject to private entry,
34 and the party of the second part having filed with the said party of the first part an application to enter the same :

Now, therefore, in consideration of the premises and of the sum of two hundred and twenty dollars ($220.00) to him in hand paid, the said party of the first part, by vi-tue of the authority in him vested by the acts of Congress and of the Legislature of Montana aforesaid, does hereby remise, release, and quitclaim unto the said party of the second part, his heirs and assigns forever, the following-described property, in the said town of Butte, in the said county of Deer Lodge and Territory of Montana, to wit: Lots number- one (1), two (2), three (3), four (4), five (5), six (6), eighteen (18), nineteen (19), twenty (20), twenty-one (21), twenty-two (22), twenty-three (23), twenty-four (24), twenty-five (25), twenty-six (26), twenty-seven (27), twenty-eight (28), twenty-nine (29), thirty (30), thirty-one (31), thirty-two (32), thirty-three (33), and thirty-four (34), in block number
35 thirteen (13), said lots being adjacent and not exceeding the area of twenty-two lots according to the official plat of the survey of said town, on file in the office of the county recorder of said Deer Lodge county :

To have and to hold the said premises, together with all the rights, privileges, and appurtenances thereunto belonging, unto the said party of the second part, his heirs, representatives, and assigns forever, as fully as by virtue of the said acts of Congress and of the Legislature of Montana and the proceedings thereunder the said party of the first part can convey the same.

In witness whereof the said party of the first part has hereunto set his hand and seal the day and year above written.

ORVILLE B. O'BANNON, [SEAL.]
Probate Judge of Deer Lodge County.

(Acknowledged.)

Defendant then introduced in evidence Andrew J. Davis, by
36 whom he offered to prove that for the five years preceding the commencement of this said action he had been in the exclusive possession of all of said premises described in his answer, save and except lots one, two, and three, in block thirteen, as set forth in said answer, under the aforesaid patent to the said O'Bannon and said deed from said O'Bannon to him under a claim of title exclusive of other right, founding his claim upon said conveyances, and that under said conveyance to him he had entered into possession of said premises; but the plaintiff objected to the introduction of said evidence upon the ground that the patent to the Gold Hill lode was issued January 15th, 1880, and that the action herein was commenced on the 8th day of August, 1884, and that five years had not elapsed between the time of the issuing of the patent and the commencement of the action; which objection the court sus-
37 tained, and to which ruling defendant, by his counsel, then and there excepted and ask to have this signed as their bill of exceptions.

And be it further remembered that on the trial of this cause the defendant produced Andrew J. Davis, Milo French, Chastine Humphrey, and Charles S. Warren, by each of whom he offered to prove that at the time of the issuing of the aforesaid patent to Orville B. O'Bannon in trust for the occupants of the Butte town site there was no known value for minerals in the said Gold Hill lode; that at the time the premises embraced within the limits of the said Gold Hill lode were not known to be valuable for minerals of any kind; to the introduction of which evidence the plaintiff, by his counsel, then and there objected on the ground that the said patent to Heinrich Wiebbold proved that the said premises contained valuable minerals; that it was valuable mineral ground and, as such, could not be patented for the purpose of a town site. The court sus-
38 tained the objection of plaintiff and the defendant was not allowed to introduce this evidence; to which ruling defendant, by his counsel, the- and there excepted and ask to have this signed as their bill of exceptions.

(Signed) WM. J. GALBRAITH (*Judge*).

And be it further remembered that on the trial of this cause the defendant produced the witnesses Andrew J. Davis, Milo French, Chastine Humphrey, and Charles S. Warren, and offered to prove by them that at no time since the date of the issuance of the said patent to Orville B. O'Bannon for the Butte town site up to this date was the said Gold Hill lode, patented to said Heinrich C. Wiebbold, known to be valuable for any minerals of any kind; that at no time since the issuing of said patent was the said premises known to be valuable for or to contain any valuable minerals or mineral deposits. To the introduction of this evidence plaintiff, by his
39 counsel, then and there objected on the ground that the patent to the Gold Hill lode to Heinrich C. Wiebbold was conclusive evidence that the said premises were valuable for minerals; which objection the court sustained and would not allow plaintiff

to introduce said evidence; to which ruling defendant, by his counsel, then and there excepted and ask to have the court sign this as their bill of exceptions, which is accordingly done.

(Signed) WILLIAM J. GALBRAITH, *Judge.*

Defendant then introduced evidence as to the value of the rents, issues, and profits, and this was all the evidence introduced by defendant.

(Signed) WM. J. GALBRAITH, *Judge.*

40 And on the 20th day of March, 1886, judgment was rendered against said defendant in said action; which said judgment is in the words and figures following, to wit:

(*Judgment.*)

(Title of Court and Cause.)

This cause having come on regularly for a trial on the 17th day of March, 1886, by and between the pl't'f and Andrew J. Davis, one of the def'ts, and each party having expressly waived a jury, and it having been tried to the court—

It is therefore ordered and adjudged that the pl't'f does have and recover of the def't named the possession of the following-described portions of the Gold Hill Lode mining claim and known, according to the town-site survey of Butte City, Silver Bow county, Montana Ter., as lots Nos. 4, 5, 6, & 7 and the north half of lot No. 8, all of lots 28, 29, & 30, & 31, 32, 33, 34, and the north 25 feet of lots 21, 22, 23, 24, 25, 26, & 27, in block number 13, in Butte City, Silver Bow county, Montana Territory.

41 That a writ of restitution issue therefore in favor of pl't'f and against the def't. It is further ordered and adjudged that pl't'f have and recover of the defendant Andrew J. Davis as damages for the detention of said property the sum of nine hundred dollars ($900) and the costs of this suit, taxed at $—.

Thus ordered to judgment and to be duly entered and recorded by the clerk the 20th day of M'ch, 1886.

(Signed) WM. J. GALBRAITH, *Judge.*

And on the 6th day of April, 1886, a stipulation was filed in said action, which was in the words and figures following, to wit:

(*Stipulation.*)

(Title of Cause and Court.)

It is hereby stipulated by and between Thos. L. Napton, att'y for plaintiff, and Knowles and Forbis, att'ys for defendant Davis, that the statement of the evidence in plaintiff's several bills of

42 exceptions is all the evidence introduced on the part of both

plaintiff and defendant, and that said evidence be the statement of the evidence on the part of defendant Davis on appeal.

Dated this 6th day of April, A. D. 1886.

THOS. L. NAPTON,
Att'y for Pl't'f.
KNOWLES AND FORBIS,
Att'ys for Def't Davis.

43 And on the 6th day of April, 1886, said defendant filed in said action his assignment of errors on statement on appeal, which was in the words and figures following, to wit:

(*Assignment of Errors.*)

(Title of Court and Cause.)

"Errors upon which the defendant will rely upon appeal.—That the court erred in finding for plaintiff on all of the issues presented in the pleadings, because defendant claimed under a patent from the United States which was prior to that of plaintiff, and there were no facts to show that there was any relation which would make plaintiff's title prior to that of defendant.

2nd. The court erred in rendering his judgment when it appears from the statement of the evidence that the patent under which defendant claimed and which was from the paramount source
44 of title, the United States, was prior to that of plaintiff's patent, and there was no dispute upon this point.

3rd. Errors of law occurring at the trial and excepted to by defendant, to wit, error of law in admitting the patent issued to Heinrich C. Wiebbold in evidence, to which ruling and the admitting said patent in evidence defendant duly excepted, as will appear by defendant's first bill of exceptions.

4th. Error — law in refusing to allow defendant to prove his possession of the lots in dispute for five years before the commencement of this action, as will fully appear in def't's bill of exceptions; to which ruling def't excepted, which will fully appear by def't's second bill of exceptions.

5. Errors of law in refusing to allow def't to prove that at the time of issuing by the United States to Orville B. O'Bannon a patent to the Butte town site the premises described in plaintiff's
45 complaint as the Gold Hill lode were not known to be valuable for minerals of any kind; which ruling was excepted to, as will appear in def't's second bill of exceptions.

—. Error of law in refusing to allow def't to prove that said Gold Hill lode had not from the day when said town-site patent was issued to said O'Bannon to this *this* was not known to be valuable for minerals of any kind; to which ruling defendant duly excepted, as will fully appear from his second bill of exceptions.

KNOWLES & FORBIS,
Att'ys for Def't Davis."

46 And on the 27th day of August, 1886, said defendant filed his notice of appeal, which was in the words and figures following, to wit:

(*Notice of Appeal.*)

(Title of Court and Cause.)

"To Thos. L. Napton, Esqr., and R. L. Davis, clerk of the above court:

Please take notice that the defendant Andrew J. Davis in the above-entitled cause hereby appeals to the supreme court in and for Montana Territory from the judgment therein made and entered in the above-entitled district on the 20th day of March, A. D. 1886, in favor of plaintiff and against the defendant Davis, and from the whole thereof. Dated this Aug. 2nd, 1886.

KNOWLES & FORBIS,
Att'ys for Def't Davis."

I hereby accept service of the above notice and waive copy this the 27th day of August, 1886.

THOS. L. NAPTON,
Att'y for Pl'tf."

47 And on the 27th day of August, 1886, said defendant filed his undertaking on appeal, which was in the words and figures following, to wit:

(*Undertaking on Appeal.*)

(Title of Court and Cause.)

"Whereas on the 2nd day of August, 1886, the above-entitled action on the part of the defendant Andrew J. Davis — appealed to the supreme court of Montana Territory from a judgment made and entered against him in the said action in the above-named district court in favor of the plaintiff and against defendant on the 20th day of March, A. D. 1886, for the recovery of the possession of certain lands and premises therein described and nine hundred dollars damages for rents and profits and cost of suit taxed at $—: Now, therefore, in consideration of the premises and of such appeal, we, the undersigned residents and freeholders of the said county of Silver Bow, do hereby jointly and severally undertake and promise on the part of the appellant that the said appellant

48 will pay all damages and costs which may be awarded against him on the appeal or on a dismissal thereof not exceeding three hundred dollars, to which amount we jointly and severally acknowledge ourselves to be bound; and whereas the appellant is desirous of staying the execution of the said judgment so appealed from as to the said costs and damages: We do further, in consideration thereof and of the premises, jointly and severally undertake and promise and do acknowledge ourselves further jointly and sev-

erally bound in the further sum of eighteen hundred dollars that if the said judgment appealed from or any part thereof in that respect be affirmed or the appeal be dismissed the appellant shall pay the amount directed to be paid thereby or the part of such amount as to which the same shall be affirmed, if affirmed only in part, and all damages and costs which shall be awarded against the appellant upon the appeal.

49 And whereas the appellant is desirous of staying the execution of the said judgment so appealed from in so far as relates to the possession of the said land and premises: We do further, in consideration thereof and of the premises, jointly and severally undertake and promise and acknowledge ourselves further jointly and severally bound in the further sum of fifteen hundred dollars, being the amount for that purpose fixed by the judge of the above court, that during the possession of such property by the appellant he will not commit or suffer to be committed any waste thereon, and if the said judgment appealed from be affirmed or the appeal be dismissed he will pay the value of the use and occupation of the property from the time of the appeal until delivery of possession pursuant to said judgment, not exceeding the sum of fifteen hundred dollars, so as aforesaid fixed by the judge of the above court, by which the said sum was fixed.

50 (Signed) A. J. DAVIS.
J. A. TALBOTT.
JOSEPH A. HYDE."

TERRITORY OF MONTANA, }
County of Silver Bow, } ss:

James A. Talbott and Joseph A. Hyde, being first duly sworn, on oath doth depose and say that he is a freeholder in the above Silver Bow county, and a resident thereof; that he is worth the sum specified in the above undertaking over and above all his debts and liabilities and property exempt from execution.

J. A. TALBOTT.
JOSEPH A. HYDE.

Subscribed and sworn to before me this the 25th day of August, 1886.

ANDREW J. DAVIS, JR.,
Notary Public.

51 And thereafter, on the 25th day of January, 1886, the defendant Andrew J. Davis filed in said action his separate answer, which was in the words and figures following, to wit:

(*Answer.*)

(Title of Court and Cause.)

"Now comes the above-named defendant, Andrew J. Davis, and, for a separate answer to plaintiff's complaint, denies—

That on the 15th day of January, 1881, or at any other time, the

plaintiff was the owner of or seized in fee or entitled to the possession of that portion of that quartz lode mining claim known as the Gold Hill, situate in Summit Valley mining district, and more particularly described in plaintiff's complaint, which is known and designated as lots one (1), two (2), three (3), four (4), five (5), six (6), seven (7), and the north half of lot eight (8); lots twenty-eight (28), twenty-nine (29), thirty (30), thirty-one (31), thirty-two (32), thirty-three (33), thirty-four (34), and the north twenty-five feet of
52 lots twenty-one (21), twenty-two (22), twenty-three (23), twenty-four (24), twenty-five (25), twenty-six (26), and twenty-seven (27), all in block thirteen (13), in Butte City, Silver Bow county, Montana Territory, said lots and block being lots and a block in the Butte town site, and the same being numbered according to the official survey of the said Butte town site, now on file in the recorder's office at Deer Lodge, Deer Lodge county, Montana Territory.

Defendant hereby disclaims any right, title, or possession of, in, and to any and all portions of the premises described in pl'ff's complaint, save and except the lots above described. Defendant denies that while plaintiff was the owner of said premises in his complaint described he entered upon the same or any portion thereof; denies that he entered upon the lots above described without any right or title to the same and ousted or ejected pl'ff therefrom on or about the 1st day of June, 1881, or at any other time. Def't denies
53 that the value of the rents, issues, or profits of said lots or the rents, issues, and profits thereof since the date of the alleged entry have been ten thousand dollars, or any sum whatever, or that the said rents, issues, or profits, or all of them, will be or has been five thousand dollars per year, or any sum per year.

And, for a further and separate defense, defendant sets forth that the action of plaintiff in this case is barred by the provisions — section 30 of the 1st division of the Code of Civil Procedure for Montana Territory, laws of 1879.

And, for a further and separate defense, defendant sets forth that he and those under whom he claims have been for more than five years last past, to wit, since 1877, in the possession of the aforesaid lots under a claim of title founded upon a written conveyance thereof, exclusive of any other right, and that he has been in the exclusive possession of said premises since said date of 1877, he and his grantors. Wherefore defendant asks that he may be sent hence with his costs.

KNOWLES & FORBIS,
Att'ys for Def't Davis."

(Verified.)

54 And thereafter, on the 16th day of March, 1886, the plaintiff filed his reply to the separate answer of the defendant Andrew J. Davis, which was in the words and figures following, to wit:

(*Reply to Separate Answer of A. J. Davis.*)

(Title of Court and Cause.)

"Now comes the pl'.t'f, and for reply to the separate answer of def't Davis denies—

1st. That his action is barred by the provisions of section 30 of the 1st division of the Code of Civil Procedure of Montana Territory of 1879, or by any provision of any code at any time whatsoever.

Pl't'f further denies that def't has been in the possession of said property mentioned in his answer or any part of it otherwise than as stated in pl't'f- complaint, and pl't'f' particularly denies that he has owned or been in possession of or entitled to the possession of the same or any part of it for the period of five years or for any greater length of time than as stated in pl't'f'- complaint.

55 Pl't'f denies that def't owns or is entitled to the possession of same or any part of it, except as stated in reference to possession in his complaint.

Pl't'f ask- judgment as requested in his complaint.

THOS. L. NAPTON,
Att'y for Pl't'f."

(Verified.)

And on the 20th day of March, 1886, said defendant filed in said action his bill of exceptions, which was in the words and figures following, to wit:

(*Bill of Exceptions.*)

(Title of Court and Cause.)

"Be it remembered that upon the trial of this cause the plaintiff offered in evidence the patent to the Gold Hill lode, which is in the words and figures as follows, to wit:

To all to whom these presents shall come, Greeting:

Whereas, in pursuance of the provisions of the Revised
56 Statutes of the United States, chapter six, title thirty-two, there have been deposited in the General Land Office of the United States the plat and field-notes of survey of the claim of Heinrich C. Wiebbold upon the Gold Hill lode, accompanied by the certificate of the register of the land office at Helena, in the Territory of Montana, whereby it appears that in pursuance of the said Revised Statutes of the United States Heinrich C. Wiebbold did, on the nineteenth day of September, A. D. 1878, enter and pay for said mining claim or premises, being mineral entry No. 438 in the series of said office designated by the surveyor general as lot No. 65, embracing a portion of township three (3) north of range eight (8) west of the principal meridian, in the Summit Valley mining district, in the county of Deer Lodge and Territory of Montana, in the

district of lands subject to sale at Helena, containing seven
57 (7) acres and sixty hundredths of an acre of land, more or less, and, according to the returns on file in the General Land Office, bounded, described, and platted as follows, with magnetic variation at as hereinafter stated: Beginning at the southwest corner of the claim, an iron bar one and one-fourth (1¼) of an inch in diameter driven in the ground at the intersection of Quartz and Main streets, in the town of Butte, from which the southeast corner of J. H. Leffler's house bears, with magnetic variation at twenty (20) degrees east, north forty-five (45) degrees fifteen (15) minutes west at the distance of sixty-nine (69) feet, the northeast corner of W. Park's house bears south fifty-four (54) degrees forty-five (45) minutes west at the distance of thirty-nine feet, the northwest corner of a carpenter's shop bears south fifty-nine (59) degrees fifteen (15) minutes east at the distance of sixty (60) feet, and
the southwest corner of a house bears north forty-five (45)
58 degrees fifteen (15) minutes east at the distance of eighty-seven (87) feet; thence from said corner No. 1 north six (6) degrees west two hundred and seventy-two (272) feet to a shaft, three hundred and forty (340) feet to corner No. 2, a post four inches square in mound of stone marked 'M. C. 65, 2,' from which corner No. 2 of lot No. 43, patented to Chas. S. Warren with his claim upon the Woolman lode, bears, with magnetic variation at eighteen (18) degrees forty-five (45) minutes east, north twenty (20) degrees forty-five minutes east at the distance of three hundred and eighty-three (383) feet; the southeast corner of lot No. 39, patented to William A. Clark with his claim upon the original lode, bears north fifty-five (55) degrees thirty (30) minutes east at the distance of four hundred and sixteen (416) feet, a shaft bears south eighty (80) degrees east at the distance of three hundred and thirty-one (331) feet, and a shaft
bears south seventy-nine (79) degrees thirty (30) minutes east
59 at the distance of four hundred and six (406) feet; thence from said corner No. 2 south eighty-seven (87) degrees forty-five (45) minutes east forty-six (46) feet to east side of Main street, one hundred and ten (110) feet to road, four hundred and ninety-four (494) feet to the west side of Wyoming street, six hundred (600) feet to small gulch, seven hundred and ten (710) feet to Town gulch, one thousand and thirty-five (1,035) feet to east boundary of Butte town site, eleven hundred and forty-two (1,142) feet to corner No. 3, a post four (4) inches square in mound of stone marked 'M. C. 65, 3,' from which the corner common to section- seven (7), twelve (12), thirteen (13), and eighteen (18), in township three (3) north of range eight (8) west of the principal meridian bears, with magnetic variation at nineteen (19) degrees forty-five (45) minutes east, north forty-one (41) degrees fifteen (15) minutes east at the distance of eleven
hundred and eighty-six (1,186) feet; thence from said corner
60 No. 3 south seventy-seven degrees thirty minutes east three hundred and eighteen (318) feet to corner No. 4, a post four (4) inches square in mound of stone marked 'M. C. 65, 4;' thence, with magnetic variation at nineteen (19) degrees thirty (30) minutes east, south six (6) degrees east fifty-four (54) feet to corner No. 5, a

post four (4) inches square in mound of stone marked 'M. C. 65, 5,' from which the southwest corner of lot No. 45 A, patented to Dennis Leary *et al.* with their claim upon the Parrot lode, bears north fifty-one (51) degrees east at the distance of three hundred and thirty-five (335) feet, and corner No. 3 of lot No. 63, made for the claim of Andrew J. Davis upon the Baltic lode, bears south thirty-nine (39) degrees fifteen (15) minutes east at the distance of four hundred and twenty-five (425) feet; thence from said corner No. 5 south
61 eighty (80) degrees forty-five (45) minutes west four hundred and thirty-three (433) feet to east boundary of Butte town site, five hundred and ninety-seven (597) feet to corner No. 6, a post four inches square in mound of stone, marked 'M. C. 65, 6;' thence, with magnetic variation at nineteen (19) degrees forty-five (45) minutes east, south eighty-five (85) degrees west ten feet to road, two hundred and seventy (270) feet to east side of Wyoming street and east end of Quartz street, eight hundred and thirty-four (834) feet to the place of beginning, containing seven acres and sixty-hundredths ($\frac{60}{100}$) of an acre of land, more or less, and embracing fourteen hundred and sixty (1,460) linear feet on the said Gold Hill lode, as represented by yellow shading in the following plat:

(The plat by agreement is here omitted.)

Now, know ye that the United States of America, in consideration of the premises and in conformity with the said Revised
62 Statutes of the United States, have given and granted, and by these presents do give and grant, unto the said Heinrich C. Wiebbold and to his heirs and assigns the said mining premises hereinbefore described as lot No. 65, embracing a portion of township three (3) north of range eight (8) west of the principal meridian, with the exclusive right of possession and enjoyment of all the land included within the exterior lines of said survey not herein expressly excepted from these presents and of fourteen hundred and sixty (1,460) linear feet in the said Gold Hill vein, lode, ledge, or deposit, for the length hereinbefore described, throughout its entire depth, although it may enter the land adjoining, and also all other veins, lodes, ledges, or deposits, throughout their entire depth, the tops or apexes of which lie inside the exterior lines of said survey at the surface extended downward vertically, although such veins,
63 lodes, ledges, or deposits in their downward course may so far depart from a perpendicular as to extend outside the vertical side lines of said survey: Provided that the right of possession hereby granted to such outside parts of said veins, lodes, ledges, or deposits shall be confined to such portions thereof as lie between vertical planes drawn downward through the end lines of said survey at the surface, so continued in their own direction that such vertical planes will intersect such exterior parts of said veins, lodes, ledges, or deposits, excepting and excluding, however, from these presents all town property rights upon the surface, and there are expressly excepted and excluded from the same all houses, buildings, structures, lots, blocks, streets, alleys, or other municipal improvements on the surface of the above-described premises not belonging

to the grantee herein, and all rights necessary or proper to the occupation, possession, and enjoyment of the same: And provided
64 further that nothing in this conveyance shall authorize the grantee herein, his heirs or assigns, to enter upon the surface of a mining claim owned or possessed by another:

To have and to hold said mining premises, together with all the rights, privileges, immunities, and appurtenances of whatsoever nature thereunto belonging, unto said Heinrich C. Wiebbold and to his heirs and assigns forever, subject, nevertheless, to the following conditions and stipulations:

First. That the grant hereby made is restricted to the land hereinbefore described as lot No. 65, with fourteen hundred and sixty (1,460) linear feet of the Gold Hill throughout its entire depth as aforesaid, together with all other veins, lodes, ledges, or deposits, throughout their entire depth as aforesaid, the tops or apexes of which lie inside the exterior lines of said survey.

Second. That the premises hereby conveyed, with the ex-
65 ception of the surface, may be entered by the proprietor of any other vein, lode, ledge, or deposit the top or apex of which lies outside the exterior limits of said survey should the same in its downward course be found to penetrate, intersect, extend into, or underlie the premises hereby granted for the purpose of extracting and removing the ore from such other vein, lode, ledge, or deposit.

Third. That the premises hereby conveyed shall be held subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes, rights to ditches and reservoirs used in connection with such water rights as may be recognized by the local laws, customs, and decisions of court.

Fourth. That in the absence of necessary legislation by Congress the Legislature of Montana may provide rules for working the mining claim or premises hereby granted involving easements, drainage, and other necessary means to its complete development.

In testimony whereof I, Rutherford B. Hayes, President of the United States of America, have caused these letters to be
66 made patent and the seal of the General Land Office to be hereto affixed.

Given under my hand, at the city of Washington, the fifteenth day of January, in the year of our Lord one thousand eight hundred and eighty, Independence of the United States the one hundred and fourth.

By the President:

R. B. HAYES,
By WILLIAM H. COOK, *Secretary.*

S. W. CLARK,
Recorder of Gen. Land Office."

To the introduction of this patent defendant, by his counsel, then and there objected for the reason the exception contained in such patent excluded all town lots from the grant thereby made, and that it is necessary for plaintiff to show that the property in controversy

was not town lots on the Gold Hill Lode claim which were excepted from said grant; that they were not town lots within the city of Butte, county of Silver Bow, Montana Territory, which were excluded by the terms of said patent from said grant; which
67 objections the court overruled and permitted the plaintiff to introduce said patent in evidence, which was done; to the above ruling and to the admission of said patent in evidence defendant, by his counsel, then and there excepted and asks the court to sign this his bill of exceptions, which is done.

(Signed) WM. J. GALBRAITH, *Judge.*

The plaintiff then offered in evidence the letters of administration of the estate of said Heinrich C. Wiebbold and conveyances showing whatever title the said Wiebbold had to the said Gold Hill lode was in plaintiff, and also evidence of the value of the rents, issues, and profits of the premises in dispute, and rested his case.

(Signed) WM. J. GALBRAITH, *Judge.*

68 And on the 20th day of March, 1886, said defendant filed his second bill of exceptions, which was in the words and figures following, to wit:

(*Bill of Exceptions.*)

(Title of Court and Cause.)

"Be it remembered that on the trial of this cause the defendant offered in evidence, first, the patent to the Butte town site to Orville B. O'Bannon in trust for the occupants of the Butte town site and a deed from said O'Bannon, as trustee, to Andrew J. Davis to the premises in controversy, as set forth in defendant's answer; which patent and deed were as follows, to wit:

(*Certificate No.* 610.)

To all to whom these presents shall come, Greeting:

Whereas Orville B. O'Bannon, probate judge of Deer Lodge county, Montana Territory, in trust for the use and benefit of the occupants of the town site of Butte, in said county, according to their respective interests by virtue of the act of Congress of
69 March 2nd, 1867, entitled 'An act for the relief of the inhabitants of cities and towns upon public lands,' has deposited in the General Land Office of the United States a certificate of the register of the land office at Helena, Montana Territory, whereby it appears that full payment has been made by the said Orville B. O'Bannon, probate judge as aforesaid, in trust as aforesaid, according to the provisions of the act of Congress of the 24th of April, 1820, entitled 'An act making further provision for the sale of the public lands,' for the following-described tract of land, to wit: Beginning at corner number one, a post four inches square in mound of stone at the southeasterly corner of the town site, marked 'T. S. C. 1,' thence, with magnetic variation at twenty

degrees fifteen minutes east, north nineteen chains and fifty links to corner number two, a post four inches square in
70 mound of earth marked 'T. S. C. 2;' thence east eight chains and sixteen links to corner number three, a post four inches square in mound of earth marked 'T. S. C. 3;' thence with magnetic variation at nineteen degrees thirty minutes east, north thirteen chains and fifty links to a street eighty feet wide, seventeen chains to a point from which quartz mill bears east at the distance one chain, eighteen chains to a small ravine, eighteen chains and fifty links to a point at center of easterly end of street, nineteen chains to a point from which a mining shaft bears east at the distance of fifteen links, twenty-seven chains and fifty links to corner number four, a post four inches square in mound of stones — 'T. S. C. 4;' thence west two chains and fifty-five links to a gulch, twenty-one chains and five links to a gulch and road, thirty-four chains and fifty links to top of a conical-shaped hill, forty-two chains and thirty-one links to corner number five, a post four inches
71 square in mound of stones marked 'T. S. C. 5;' thence, with magnetic variation eighteen degrees and fifty minutes east, south forty-seven chains to corner number six, a post four inches square in mound of stones at cropping of quartz on the Cyaromat lode, marked 'T. S. C. 6,' from which the corner common to sections thirteen, eighteen, nineteen, and twenty-four, in township three north of ranges eight and nine west of the principal meridian, bears south eighty-six degrees forty-one minutes west at the distance of four hundred and twenty-three chains and forty-eight links; thence from said corner number six, with magnetic variation at nineteen degrees twenty minutes east, east one chain and sixty links to road, nine chains and ten links to small ravine, fifteen chains and sixty links to a street one hundred feet wide, twenty chains and thirty-five links to small ravine, thirty-one chains and fifty links to a street eighty feet wide, thirty-four chains and thirty links to the
72 place of beginning, in the district of lands subject to sale at Helena, Montana Territory, containing one hundred and eighty-three and eighty-three hundredths of an acre according to the official plat of the survey of the said lands returned to the General Land Office by the surveyor general, which said tract has been purchased by the said Orville B. O'Bannon, probate judge as aforesaid, in trust as aforesaid:

Now, know ye that the United States of America, in consideration of the premises and in conformity with the several acts of Congress in such case made and provided, have given and granted, and by these presents do give and grant, unto the said Orville B. O'Bannon, probate judge as aforesaid, in trust as aforesaid, and to his successors the said tract above described; to have and to hold the same, together with all the rights, privileges, immunities, and appurtenances of whatsoever nature thereunto belonging, unto the said Orville B. O'Bannon, probate judge as aforesaid, in trust as aforesaid,
73 and to his successors and assigns, in trust as aforesaid.

No title shall be hereby acquired to any mine of gold, silver,

cinnabar, or copper or to any valid mining claim or possession held under existing laws of Congress.

In testimony whereof I, Rutherford B. Hayes, President of the United States of America, have caused these letters to be made patent and the seal of the General Land Office to be hereunto affixed.

Given under my hand, at the city of Washington, the twenty-sixth day of September, in the year of our Lord one thou-
[SEAL.] sand eight hundred and sixty-seven, and of the Independence of the United States the one hundred and second.

By the President:

R. B. HAYES,
By B. LANG, *Secretary.*

(Recorded, vol. 5, page 92.

S. W. CLARK,
Recorder of General Land Office.")

74 "This indenture, made this 24th day of March, A. D. 1877, by and between Orville B. O'Bannon, probate judge of Deer Lodge county, Montana Territory, of the first part, and Andrew J. Davis, of the said county and Territory, of the second part, witnesseth:

That whereas the site of the town of Butte, in Deer Lodge county, Montana Territory, has been duly entered by the said probate judge at the United States land office at Helena, in the said Territory, in pursuance of the act of Congress in such case made and provided;

And whereas a portion of the lots in said town site were regularly pre-empted and conveyed by the said probate judge to the parties entitled thereto, and there remained thereafter a portion of the said town lots unclaimed after the expiration of sixty days, including the property hereinafter conveyed;

And whereas, in pursuance of the act of the Legislature of Montana Territory relating to the pre-emption of town sites
75 and the disposal of lots therein, the said probate judge gave the required notice more than ten days before the day of sale that he would sell at public sale certain of said lots remaining unclaimed as above stated, and including the property hereinafter conveyed, on the 12th day of March, 1877;

And whereas, in pursuance of said notice, the property hereinafter conveyed was, on the 12th day of March, A. D. 1877, duly offered at public sale, and no bid having been received therefor, and the property so offered being thereby rendered subject to private entry, and the party of the second part having filed with the said party of the first part an application to enter the same: Now, therefore, in consideration of the premises and of sum of two hundred and twenty dollars ($220) to him in hand paid, the said party of the first part, by virtue of the authority in him vested by the acts of Congress and of the
76 Legislature of Montana aforesaid, does hereby remise, release, and quitclaim unto the said party of the second part, his heirs and assigns forever, the following-described property, in the said town of Butte, in the said county of Deer Lodge and Territory of Montana,

to wit: Lots number one (1), two (2), three (3), four (4), five (5), six (6), eighteen (18), nineteen (19), twenty (20), twenty-one (21), twenty-two (22), twenty-three (23), twenty-four (24), twenty-five (25), twenty-six (26), twenty-seven (27), twenty-eight (28), twenty-nine (29), thirty (30), thirty-one (31), thirty-two (32), thirty-three (33), and thirty-four (34), in block number thirteen (13), said lots being adjacent and not exceeding the area of twenty-two (22) lots according to the official plat of the survey of said town on file in the office of the county recorder of said Deer Lodge county:

To have and to hold the said premises, together with all the rights, privileges, and appurtenances thereunto belonging,
77 unto the said party of the second part, his heirs, representatives, and assigns forever, as fully as by virtue of the said acts of Congress and of the Legislature of Montana and the proceedings thereunder the said party of the first part can convey the same.

In witness whereof the said party of the first part has hereunto set his hand and seal the day and year above written.

ORVILLE B. O'BANNON, [SEAL.]
Probate Judge of Deer Lodge County."

(Acknowledged.)

Defendant then introduced in evidence Andrew J. Davis, by whom he offered to prove that for the five years preceding the commencement of this action he had been in the exclusive possession of all of said premises described in his answer, save and except lots one, two, and three, in block thirteen, as set forth in said answer, under the aforesaid patent to the said O'Bannon and said deed from said O'Bannon to him under a claim of title exclusive of
78 other right, founding his claim upon said conveyances, and that under said conveyance to him he had entered into possession of said premises; but the plaintiff objected to the introduction of said evidence upon the ground that the patent to the Gold Hill lode was issued January 15th, 1880, and that the action herein was commenced on the 8th day of August, 1884, and that five years had not elapsed between the time of the issuing of the patent and the commencement of the action; which objection the court sustained, and to which ruling defendant, by his counsel, then and there excepted and ask to have this signed as their bill of exceptions.

And be it further remembered that on the trial of this cause the defendant produced Andrew J. Davis, Milo French, Chastine Humphrey, and Charles S. Warren, by each of whom he offered to prove that at the time of the issuing of the aforesaid patent to Orville B. O'Bannon in trust for the occupants of the Butte town site there
79 was no known value for minerals in the said Gold Hill lode; that at the time the premises embraced within the limits of the said Gold Hill lode were not known to be valuable for minerals of any kind; to the introduction of which evidence the plaintiff, by his counsel, then and there objected on the ground that the said patent to Heinrich Wiebbold proved that the said premises contained valuable minerals; that it was valuable mineral ground and

as such could not be patented for the purposes of a town site. The court sustained the objection of plaintiff, and the defendant was not allowed to introduce this evidence; to which ruling defendant, by his counsel, then and there excepted and ask to have this signed as their bill of exceptions.

(Signed) WM. J. GALBRAITH, *Judge.*

And be it further remembered that on the trial of this cause the defendant produced the witnesses Andrew J. Davis, Milo
80 French, Chastine Humphrey, and Charles S. Warren, and offered to prove by them that at no time since the date of the issuance of the said patent to Orville B. O'Bannon for the Butte town site up to this date was the said Gold Hill lode, patented to said Heinrich C. Wiebbold, known to be valuable for any minerals of any kind; that at no time since the issuing of said patent was the said premises known to be valuable for or to contain any valuable minerals or mineral deposits.

To the introduction of this evidence plaintiff, by his counsel, then and there objected on the ground that the patent to the Gold Hill lode to Heinrich C. Wiebbold was conclusive evidence that the said premises were valuable for minerals; which objection the court sustained and would not allow plaintiff to introduce said evidence; to which ruling defendant, by his counsel, then and there excepted and ask to have the court sign this as their bill of exceptions, which is accordingly done.

81 (Signed) WILLIAM J. GALBRAITH, *Judge.*

Defendant then introduced evidence as to the value of the rents, issues, and profits, and this was all the evidence introduced by defendant.

(Signed) WILLIAM J. GALBRAITH, *Judge.*

82 And on the 20th day of March, 1886, judgment was rendered against said defendant in said action; which said judgment was in the words and figures following, to wit:

(*Judgment.*)

(Title of Court and Cause.)

"This cause having come on regularly for a trial on the 17th day of March, 1886, by and between the pl't'f and Andrew J. Davis, one of the def'ts, and each party having expressly waived a jury, and it having been tried *to* the court—

It is therefore ordered and adjudged that the pl't'f *does* have and recover of the def't named the possession of the following-described portions of the Gold Hill Lode mining claim and known according to the town-site survey of Butte City, Silver Bow county, Montana Ter., as lots Nos. 4, 5, 6, & 7 and the north half of lot No. 8, all of lots 28, 29, & 30 & 31, 32, 33, 34 and the north 25 feet of lots 21, 22, 23, 24, 25, 26, & 27, in block No. 13, in Butte City, Silver Bow county, Montana Territory.

83 That a writ of restitution issue therefor in favor of pl't'f and against the def't.

It is further ordered and adjudged that pl't'f have and recover of the defendant Andrew J. Davis as damages for the detention of said property the sum of nine hundred dollars ($900) and the costs of this suit, taxed at $—.

Thus ordered to judgment and to be duly entered and recorded by the clerk this 20th day of March, 1886.

(Signed) WILLIAM J. GALBRAITH, *Judge.*

And on the 27th day of March, 1886, said defendant filed in said action his notice of motion for a new trial, which was in the words and figures following, to wit:

(*Notice of Motion for a New Trial.*)

(Title of Court and Cause.)

"To Thomas L. Napton, att'y for plaintiff:

Take notice that the above-named defendant, Andrew J. Davis intends to move the above court to vacate and set aside the
84 findings and decision of the court rendered in the above cause, upon the following grounds, to wit:

1st. That the patent under which plaintiff claims was subsequent to that of the patent under which defendant claimed title, and there was nothing to show that the said patent under which plaintiff claims relates back to a date prior to the patent under which defendant claims.

2nd. Errors at law occurring at the trial and excepted to by defendant, to wit, error of law in admitting the patent issued to Heinrich C. Wiebbold; to which ruling and the admitting said evidence defendant duly excepted, as will appear by def't's first bill of exceptions herein.

Error of law in refusing to allow defendant to prove his possession of the lots in dispute for five years before the commencement of this action, as will fully appear in def't's bill of exceptions; to which ruling defendant excepted, which will fully appear by def't's second bill of exceptions.

85 Error of law in refusing to allow def't to prove that at the time of issuing by the United States to Orville B. O'Bannon a patent to the Butte town site the premises described in plaintiff's complaint as the Gold Hill lode were not known to be valuable for minerals of any kind; which ruling was excepted to, as will appear in def't's second bill of exceptions.

Error of law in refusing to allow def't to prove that said Gold Hill lode had not from the day when said town-site patent was issued to said O'Bannon to this said Gold Hill lode was not known to be valuable for minerals of any kind; to which ruling def't duly excepted, as will fully appear from his second bill of exceptions.

That this motion will be made on a statement of the case to be hereafter prepared.

KNOWLES AND FORBIS,
Att'ys for Def't Davis."

I hereby accept service of the above notice and waive copy this 27th day of March, 1886.

THOS. L. NAPTON,
Att'y for Pl't'f."

86 And on the 6th day of April, 1886, the following stipulation was filed in said action, to wit:

(*Stipulation.*)

(Title of Court and Cause.)

"It is hereby stipulated by and between Thos. L. Napton, att'y for pl't'f, and Knowles and Forbis, att'ys for defendant Davis, that the statement of the evidence in plaintiff's several bills of exceptions is all the evidence introduced in evidence on the part of both plaintiff and defendant, and that said evidence be the statement of the evidence on the part of defendant on his motion for a new trial.

Dated this 6th day of April, A. D. 1886.

THOS. L. NAPTON,
Att'y for Pl't'f.

87 And on the 6th day of April, 1886, said defendant filed in said action his assignment of errors on a motion for a new trial, which was in the words and figures following, to wit:

(*Assignment of Errors on Motion for New Trial.*)

(Title of Court and Cause.)

Assignment of errors upon which defendant Davis will rely on a motion for a new trial.

1. That the findings of fact on the part of the court was contrary to the evidence in this: That it appears from the evidence that plaintiff claimed under a patent from the United States which was subsequent in date to the patent from the United States under which defendant claimed, and there was nothing in the evidence to show that the patent of plaintiff related back to a date prior to that of defendant.

2. Error in law accruing at the trial and excepted to by defendant, to wit:

Error of law in admitting the patent issued to Heinrich C. Weibbold; to which ruling and the admitting said patent in evi-
88 dence defendant duly excepted, as will appear by defendant's first bill of exceptions.

Error of law in refusing to allow defendant to prove his possession of the lot in dispute for five years before the commencement of this

action, as will fully appear in defendant's bill of exceptions; to which ruling defendant excepted, which will fully appear by defendant's second bill of exceptions.

Error of law in refusing to allow defendant to prove that at the time of the issuing by the United States to Orville B. O'Bannon of a patent to the Butte town site the premises described in plaintiff's complaint as the Gold Hill lode were not known to be valuable for minerals of any kind; which ruling was excepted to, as will appear in def't's second bill of exceptions.

Error of law in refusing to allow defendant to prove that said Gold Hill lode had not, from the day when said town-site patent was issued to said O'Bannon to this, any known value for minerals of any kind; to which ruling def't excepted, as will fully appear
89 from his second bill of exceptions.

KNOWLES & FORBIS,
Att'ys for Def't Davis.

And on the 18th day of October, 1886, the court overruled defendant's said motion for a new trial in said cause, and caused the following order to be entered in the journal of said court, to wit:

Order Overruling Motion for New Trial.

Title of Cause.

"Defendant's motion for new trial is overruled, to which ruling defendants except-."

And on the 20th day of November, 1886, said defendant filed his notice of appeal from order overruling motion for new trial, which was in the words and figures following, to wit:

Notice of Appeal.

Title of Court and Cause.

Please take notice that the above-named defendant, Andrew J. Davis, hereby appeals to the supreme court in and for Mon-
90 tana Territory from the order of the above district court, above named, made by it during the September term of said district court, overruling said defendant's motion for a new trial, and from the whole of said order.

Butte City, Silver Bow county, Montana Territory, Nov. 20th, A. D. 1886.

KNOWLES & FORBIS,
Att'ys for Def't.

To the clerk of the above-named district court and to Sharp and Thomas L. Napton, attorneys for plaintiff.

We hereby accept service of the above notice and waive a copy thereof this the 20th day of November, A. D. 1886.

THOS. L. NAPTON,
Per SHARP.

And on the 23d day of November, 1886, said defendant filed in said action his undertaking on appeal from the order overruling his motion for a new trial; which is in the words and figures following, to wit:

Undertaking on Appeal.

91 Title of Court and Cause.

Whereas the above-named defendant, Andrew J. Davis, has appealed to the supreme court of Montana Territory from an order made and entered in the above court, overruling his motion for a new trial, on the 18th day of October, 1886: Now, therefore, in consideration of the premises and of such appeal, we, the undersigned, residents of the county of Silver Bow, Montana Territory, do hereby jointly and severally undertake and promise, on the part of the appellant, that the said appellant will pay all damages and costs which may be awarded against him on appeal, or a dismissal thereof, not exceeding three hundred dollars, to which amount we acknowledge ourselves jointly and severally bound.

Dated this 24th day of November, A. D. 1886.

(Signed) ANDREW J. DAVIS, JR.
JOSEPH A. HYDE.

TERRITORY OF MONTANA, }
County of Silver Bow, } *ss:*

92 Andrew J. Davis, Jr., and Joseph A. Hyde, being first duly sworn, on oath, each for himself, doth depose and say that he is worth the sum of three hundred dollars, the amount for which he has become liable on the foregoing obligation, over and above his liabilities and obligations and property exempt from execution in Montana Territory.

(Signed) ANDREW J. DAVIS, JR.
JOSEPH A. HYDE,

Subscribed & sworn to before me this the 24th day of November, A. D. 1886.

JOHN F. FORBIS,
Notary Public.

Clerk's Certificate.

I, William F. Shanley, clerk of the dist. court of the second judicial dist. of Montana Territory in & for the county of Silver Bow, do hereby certify that the foregoing is a full, true, & correct copy of the several records & papers mentioned in the foregoing transcript as the same appear in the records & files in my office.

In witness whereof I have hereunto subscribed my hand & affixed the seal of said court this 7th day of July, A. D. 1887.

[SEAL.] W. F. SHANLEY, *Clerk,*
By C. O. HENDERSON,
Deputy Clerk.

93 In Supreme Court of Montana. July Term, 1887.

HENRY WIEBBOLD, Respondent,
vs.
ANDREW J. DAVIS, Appellant.

In the present term of July, A. D. 1887, the above-entitled cause was brought into the supreme court of Montana Territory by virtue of an appeal, according to law, from the judgment of the court below entered in said cause on the 20th day of March, 1886, and from the order overruling appellant's motion for a new trial therein; and the transcript of the record of the court below was duly filed in said cause.

And the said — coming on to be heard before the court on the said transcript of record was argued by counsel; and thereafter, said cause coming regularly on for the decision and judgment of the court on appeal, the court rendered its opinion and decision in writing, of which the following is a copy, to wit:

94 *Opinion.*

In the Supreme Court of Montana Territory. July Term, 1887.

HENRY WIEBBOLD, Respondent,
vs.
ANDREW J. DAVIS, Appellant.

BACH, *J.*, delivered the opinion:

"It is conceded that the questions for review in this case are identical with those heretofore decided by this court in the case of King *vs.* Thomes, 6 Mont., 409. Accordingly, and on the authority of that case, the judgment and order denying a motion for a new trial are affirmed, with costs."

Thereupon judgment on appeal was entered in said cause in words and figures following, to wit:

Judgment on Appeal.

In the Supreme Court of Montana Territory. July Term, 1887.

HENRY WIEBBOLD, Respondent,
vs.
ANDREW J. DAVIS, Appellant.

95 Be it remembered that in the present term of July, 1887, this cause was brought into this supreme court by virtue of an appeal, according to law, from the judgment and order of the court below overruling appellant's motion for a new trial and filing in this court of the transcript of the record on appeal of the court below in said cause; and the said cause coming on to be heard before the court on the said transcript of record was argued by counsel; whereupon, on consideration, it is now here ordered and adjudged

by this court that the judgment and order of the court below overruling appellant's motion for a new trial be, and the same are hereby, affirmed, with costs; and it is hereby further ordered and adjudged by this court that said plaintiff and respondent, Henry Wiebbold, recover against said defendant and appellant, Andrew J. Davis, —— dollars for his costs herein expended & have execution therefor.

23d July, 1887.

From which said judgment said appellant, Davis, appealed to the Supreme Court of the United — and filed his bond on such appeal in the words & figures following, to wit:

96 *Bond on Appeal.*

In the Supreme Court of the United States.

ANDREW J. DAVIS, Appellant,
vs.
HENRY WIEBBOLD, Appellee.

Know all men by these presents that we, Andrew J. Davis, Joseph A. Hyde, and James R. Boyce, Jr., of Butte City, Silver Bow county, Montana Territory, are firmly held and bound unto Henry Wiebbold in the sum of two thousand five hundred dollars, to be paid to the said Henry Wiebbold; to which payment, well and truly to be made, we bind ourselves and each of us, jointly and severally, and our and each of our heirs, executors, and administrators, firmly by these presents.

Sealed with our seals. Dated this — day of ——, 1887.

Whereas the above-named Andrew J. Davis hath taken an appeal to the Supreme Court of the United States to reverse the judgment rendered in the above-entitled action by the supreme court of Montana Territory:

Now, therefore, the condition of this obligation is such that if the above-named Andrew J. Davis shall prosecute his said appeal
97 to effect and answer all costs and damages if he shall fail to make good his plea, then this obligation shall be void; otherwise to remain in full force and effect.

Dated this 6th day of Aug., A. D. 1887.

A. J. DAVIS. [SEAL.]
JOSEPH A. HYDE. [SEAL.]
J. R. BOYCE, JR. [SEAL.]

Endorsement: "I hereby approve of the within bond this the 6th day of Sept., 1887. Wm. J. Galbraith, asso. justice of supreme court in & for Montana Territory. Filed Sept. 15, 1887. I. R. Alden, clerk."

And the said appellant filed herein the order of Wm. J. Galbraith, asso. justice of the supreme court of Montana, allowing an appeal to

the Supreme Court of the United States, the appeal itself & citation duly served, which said separate and distinct papers accompany this case to the Supreme Court of the United States and are hereto attached.

98 In the Supreme Court of the United States.

ANDREW J. DAVIS, Appellant,
vs.
HENRY WIEBBOLD, Appellee.

To the honorable the Supreme Court of the United States:

The appeal of Andrew J. Davis, the above-named appellant, respectfully showeth—

That upon the 4th day of August, A. D. 1884, the above-named appellee filed his complaint in the district court of the 2d judicial district in and for Silver Bow county, Montana Territory, against the above-named appellant, Magnus Akerson, Alice L. Steele, Alexander Scott, Charles Beehrer, James A. Murray, William Read, H. D. Dosenstein, Frank Carroll, Gus. Meyer, Edward J. Harris, Mrs. —— Spencer, Joseph Demass, The Miners' Union, Wm. R. Kenyon, Emanuel Housworth, Mrs. —— Tony, M. L. Holland, Mrs. —— Montto, D. Dauserault, A. J. Dusseau, Daniel Sullivan, Mrs. —— Vischer, Michael McCormick, Patrick J. Hughes, B. M. Anderson, C. Seltier, Frank Goddard, —— Caff, Wm. H. Kendall, T. Ferrier, Thomas Rutter, Anton Morley, Daniel Johnson, Joe Johnston, Thomas Allen, Daniel McLin, Alexander X. Sey, John C. Cook, John B. Wampler, Edwin H. Irvine, Orville B. O'Bannon, Timothy Kennedy, S. B. Larmour, Fredrick S. De Wolfe, Elmyra Noyes, Henry D. Hauser, Milo French, Joel A. Harrington, Henry J. Brise, Hattie Gordon, Thomas Driscol, Henry B. Cline, Robert C. Knox, Oren Emerson, and John Doe.

99 The complaint aforesaid stated a cause of action against all of the defendants above named in the nature of an action in ejectment. It set forth that plaintiff, now the appellee herein, was the owner of the premises described in the said complaint as the Gold Hill lode; that while so the owner defendants entered upon and ousted said plaintiff from the possession thereof and withheld the possession thereof from said plaintiff.

To this complaint all of said defendants who made answer thereto filed their separate answers thereto, among whom was this appellant, who made answer denying plaintiff's title to a portion of the premises described in his complaint, which portion is particularly set forth in said answer, and denying that he, this appellant, ever entered upon any other portion of said premises described in said answer, and disclaiming all title or claim to any other portion of said lode save that set up in said answer, and alleging ownership of said premises in himself.

That said cause was tried in the district court without the intervention of a jury upon a substituted complain- herein and an answer thereto as above stated.

That on said trial evidence was introduced on both sides and evidence offered on the part of defendant, which, being excepted to, was excluded.

That the court, having heard the evidence in the cause and being fully advised by the counsel in the cause, rendered his judgment for the plaintiff, the above-named appellee, and against appellant, which is as follows, to wit:

HENRY WEIBBOLD, Pl'f,
vs.
ANDREW J. DAVIS & Fifty-Four Others, D'f'ts.

100 This cause having come on regularly for trial on the 17th day of March, 1886, by and between the pl't'f and Andrew J. Davis, one of the def'ts, and each party having expressly waived a jury and it having been tried by the court—

It is thereupon ordered and adjudged that the pl't'f does have and recover of the def't named the possession of the following-described portion of the Gold Hill Lode mining claim, known, according to the town-site survey of Butte City, Silver Bow county, Montana Ter., as lots Nos. 4, 5, 6, and 7, and the north half of lot No. 8, all of lots 28, 29, & 30, & 31, 32, 33, 34, and the north 25 feet of lots 21, 22, 23, 24, 25, 26, & 27, in block 13, in Butte City, Silver Bow county, Montana Territory.

That a writ of restitution issue therefor in favor of pl't'f and against the def't.

It is further ordered and adjudged that pl't'f have and recover of the defendant Andrew J. Davis, as damages for the detention of said property, the sum of nine hundred ($900) dollars and the costs of this suit.

Tu-s ordered to judgment and to be duly entered and recorded by the clerk this 20th day of March, 1886.

WM. J. GALBRAITH, *Judge.*

That said defendant, now the appellant, severed from the other defendants named in said complaint, and the issues presented by his answer tried as a separate cause.

That on the 27th day of August, 1886, defendant, now appellant, Davis herein appealed said cause and from the judgment therein to the supreme court of Montana Territory.

That at the July term of said supreme court of Montana
101 Territory for 1887 the said cause came up for hearing on the appeal of appellant, and the said supreme court of Montana, being advised in the premises, affirmed in all and every particular said judgment.

That said judgment of the said supreme court of Montana Territory is the final judgment in said cause as far as the courts of Montana are concerned.

That the adjudication in said cause involved a construction of a statute of the United States.

Wherefore this appellant appeals from the whole of said judgment of said supreme court of Montana Territory to the Supreme

Court of the United States, and respectfully prays that the judgment of the said supreme court of Montana and the complaint, answer, bills of exceptions, and all the proceedings and papers in said cause may be sent to the Supreme Court of the United States without delay, and that the said Supreme Court of the United States will proceed to hear the said cause anew, and that the said judgment of the said supreme court of Montana and every part thereof may be reversed, and the said Supreme Court of the United States shall render such judgment in said cause as to it shall seem just in the premises.

August 29th, 1887.

HIRAM KNOWLES,
Counsel for Appellants.

102 [Endorsed:] Andrew J. Davis, appellant, *vs.* Henry Weibbold, appellee. Appeal, petition on. Filed Sept. 15, 1887. I. R. Alden, clerk.

103 In the Supreme Court of Montana Territory.

ANDREW J. DAVIS, Appellant,
vs.
HENRY WEIBBOLD, Appellee.

Upon reading and considering the application of Andrew J. Davis for an appeal in the above cause, and being fully advised in the premises—

It is hereby ordered that the appeal in the above cause be, and is hereby, allowed, and the bonds on appeal be, and the same is, fixed at twenty-five hundred dollars.

WM. J. GALBRAITH,
Asso. Justice of the Supreme Court in and for Montana Territory.

104 [Endorsed:] Andrew J. Davis, appellant, *vs.* Henry Weibbold, respondent. Allowance of appeal. Filed Sept. 15, 1887. I. R. Alden, clerk.

105 In the Supreme Court of the United States.

ANDREW J. DAVIS, Appellant,
vs.
HENRY WEIBBOLD, Appellee.

By the Honorable Wm. J. Galbraith, asso. justice of the supreme court of Montana Territory.

To Henry Weibbold, appellee:

Whereas the above-named Andrew J. Davis has lately appealed to the Supreme Court of the United States from a judgment lately rendered in the supreme court of Montana Territory, made in favor of you, the said Henry Wiebbold, and has filed the security required by law: You are therefore hereby cited to appear before the said

Supreme Court of the United States, at the city of Washington, on the second Monday of October next, to do and receive what may appertain to justice to be done in the premises.

Given under my hand, at the city of Helena, in the Territory of Montana, this the 6th day of September, A. D. 1887.

WM. J. GALBRAITH,
Associate Justice of the Supreme Court of Montana Territory.

ANDREW J. DAVIS, Appellant,
vs.
HENRY WEIBBOLD, Appellee.

Hiram Knowles, being first duly sworn, saith that on the 15th day of September, 1887, at Butte City, Silver Bow county, Montana Territory, he served the above-named appellee a copy of the appeal and a copy of the citation filed in this cause with the clerk of the supreme court of Montana Territory by delivering said copy of the citation to Thomas L. Napton, attorney for appellee, personally and by leaving said copy of the appeal for said appellee in the clerk's office of the supreme court of Montana Territory as aforesaid.

HIRAM KNOWLES.

Subscribed and sworn to before me this the twentieth day of September, A. D. 1887.

[Notarial Seal John F. Forbis, Montana.]

JOHN F. FORBIS,
Notary Public.

I hereby accept service of the within citation and acknowledge the receipt of a copy thereof this 15th day of Sept., 1887.

THOS. L. NAPTON,
Solicitor for Appellee.

(Endorsed:) Andrew J. Davis, appellant, *vs.* Henry Wiebbold, appellee. Citation. Filed Sept. 20, 1887. I. R. Alden, clerk.

106 In the Supreme Court of Montana Territory.

ANDREW J. DAVIS, Appellant,
vs.
HENRY WIEBBOLD, Respondent.

I, I. R. Alden, clerk of the supreme court of Montana Territory, do hereby certify that the foregoing 97 pages, numbered from 1 to 97, inclusive, contain a full, true, & correct transcript of certain pleadings, records, and proceedings filed, made, & had in the above-entitled cause as the same remain on file and of record in my office,

Seal Supreme Court Montana Territory.

In witness whereof I have hereunto set my hand and affixed the seal of said court this 24th day of Sept., 1887.

I. R. ALDEN, *Clerk.*

107 In the Supreme Court of the United States.

ANDREW J. DAVIS, Plaintiff in Error,
vs.
HENRY WIEBBOLD, Defendant in Error.

Now comes Andrew J. Davis, the above-named plaintiff in error, and, by permission of the Supreme Court of the United States first had and obtained, amends the record herein, and for assignments of error upon which he will rely in the above-named court says:

The court erred in making a finding for defendant in error on any or all of the issues presented in the pleadings and in entering judgment for defendant in error upon the evidence in the case.

2nd. The court erred in rendering judgment for defendant in error, when it appears from the statement of the evidence that the patent under which the defendant claimed and which was from the paramount source of title, the United States, was prior to that of the defendant in error's patent, and there was no dispute or conflict of evidence on this point.

3rd. The court erred in overruling the plaintiff in error's objection to the admission in evidence of the patent from the United States issued to Heinrich C. Wiebbold without proving that the premises in dispute were not town lots in the town site of Butte on said lode.

4th. The court erred in sustaining defendant in error's objection to plaintiff in error's proving that he had been in the actual adverse possession of the premises in dispute for five years prior to the commencement of this action.

5th. The court erred in sustaining defendant in error's ob-
108 jection to the plaintiff in error proving that at the time of the issuing by the United States of the patent of the Butte town site to Orville B. O'Bannon the premises described in plaintiff's complaint as the Gold Hill lode were not known to be valuable for mineral of any kind.

6th. The court erred in sustaining defendant in error's objection to the plaintiff in error proving that the Gold Hill lode had not, from the day when the patent for the town site of Butte was issued to said O'Bannon to the date of the trial of this cause, been known to be valuable for minerals of any kind.

7th. The supreme court of Montana erred in sustaining the ruling of the district court of the second judicial district for said Territory in its said ruling against plaintiff in error upon each and all of the above assigned errors.

And the said plaintiff in error prays that the judgment aforesaid may be reversed and annulled and altogether held for naught, and

that he may be restored to all things which he hath lost by occasion of the said judgment.

HIRAM KNOWLES,
Attorney for Plaintiff in Error.

109 [Endorsed:] Sup. Court U. S. 1888, Oct'r term. No. 835. Andrew J. Davis *vs.* Henry Wiebbold. Assignments of error. [Stamped:] Office Supreme Court U. S. Filed Sep. 12, 1888. James H. McKenney, clerk.

Endorsed on cover: Montana T. sup. court. No. 219. Andrew J. Davis, appellant, *vs.* Henry Weibbold. Filed October 13, 1887.

Office Supreme Court U. S.
FILED,
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CLERK.

In The Supreme Court

OF THE

UNITED STATES

ANDREW J. DAVIS,
Appellant,

vs.

HENRY WIEBBOLD,
Appellee.

APPELLANT'S BRIEF.

JAMES W. FORBIS,
Counsel for Appellant.

INTER MOUNTAIN PRINT
BUTTE, MONTANA

In the Supreme Court of the United States

ANDREW J. DAVIS,

Appellant,

vs.

HENRY WIEBBOLD,

Appellee.

STATEMENT OF CASE.

This is an action in the nature of ejectment, brought in the District Court of Silver Bow County, Montana Territory, on the 4th day of August, 1884, by Henry Wiebbold against Andrew J. Davis and many others. Andrew J. Davis answered separately, claiming title to the property described in the judgment. The cause was tried before the Court without a jury, and upon the evidence the Court found for the plaintiff, Wiebbold, and ordered restitution of the premises and $900 damages for the detention thereof.

The plaintiff, Wiebbold, claimed under a patent issued by the United States for the Gold Hill lode claim, dated January 15, 1880.

The appellant, Davis, claimed under a patent for the Butte Townsite, issued by the United States, and dated September 26, 1877.

The plaintiff introduced in evidence the patent for the Gold Hill lode claim, dated as aforesaid, and such evidence as was necessary to show the title acquired by patent to be in the plaintiff, and evidence showing the reasonable rental of the premises while Davis was in possession of the same. Upon this evidence the plaintiff rested, without showing, or attempting to show the date of the location of the Gold Hill lode claim, or the date of the application for patent for the same. The defendant objected to the introduction of this patent for the reason that a clause contained in the patent excluded all town lots and improvements from the grant of the patent, and that before the patent could be introduced in evidence it was necessary that plaintiff should show that the ground in controversy did not come within the terms of the exception. The court overruled the objection and admitted the patent. (P. 21 of Record.)

The defendant and appellant then introduced in evidence the patent for the Butte Townsite, and deeds showing title thereunder to be in defendant. The defendant also offered to prove by Andrew J. Davis that he had been in the actual possession of the premises in controversy for more than five years before the commencement of the action, claiming the same under title derived through the townsite patent. This evidence the court rejected. (P. 25 of Record.) The defendant then offered to prove by numerous witnesses that the ground in controversy at the date of the issuance of the patent, and ever since, was not known

to be valuable for the mineral contained therein, and that the same has no value as mineral ground, and was never valuable for the mineral contained therein. This evidence the court refused to admit. (Pp. 25–26 of Record)

The Court thereupon found for the plaintiff as above stated. An appeal was taken from this judgment to the Supreme Court of the Territory of Montana, and the judgment was there affirmed. This appeal is taken from the decision of the Territorial Supreme Court.

SPECIFICATION OF ERRORS.

First—The Court erred in admitting in evidence the patent for the Gold Hill lode claim without proof that the ground included within the limits of the claim was not used as town lots or for townsite purposes. The provisions of the patent respecting this matter are as follows, to wit: "Excepting and excluding, however, from these presents all town property rights upon the surface, and there are expressly excepted and excluded from the same all houses, buildings, structures, lots, blocks, streets, alleys or other municipal improvements on the surface of the above described premises not belonging to the grantee herein, and all rights necessary or proper to the occupation, possession and enjoyment of the same."

Second—The Court erred in refusing to allow the defendant to prove that prior to the commencement of

this action the defendant had been for more than five years in the actual, peaceable and exclusive possession of the premises in controversy, claiming the same under color of title. The Statutes of Montana provides that: "No action for the recovery of real property, or for the recovery of the possession thereof, can be maintained unless it appear that the plaintiff, his ancestor, predecessor or grantor was seized or possessed of the property in question within five years before the commencement of the action." (Sec. 29, Code of Civil Procedure, Compiled Stat.) Section 30 of the Code extends the same limitation to any action or defense arising out of the title to real estate.

Third—The court erred in refusing to allow the defendant to show by witnesses that at the date of the application for the townsite patent the premises included in the Gold Hill patent were not known to be valuable for mineral of any kind, or that the Gold Hill lode claim had not, since the issuance of the townsite patent, any known value for mineral of any kind.

Fourth—The Court erred, upon the evidence in entering a judgment for the plaintiff, as the question was simply the construction of the two patents in evidence, and the townsite patent being the older and no proof being offered to show a superior title under the mineral patent, judgment should have been rendered in favor of the defendant.

These several points were saved in bills of exception taken upon the trial, which bills of exceptions set out

all of the evidence on part of the plaintiff and defendant, including copies of the patents relied upon by the respective parties.

APPELLANT'S BRIEF.

This case was decided in the Supreme Court of the Territory of Montana, and is reported in the 7th Montana, 107. In the opinion of the Court, it is stated that the questions for review are identical with those theretofore decided by the Court in the case of King vs. Thomas, 6 Montana, 409. This case is one of a series arising in Silver Bow County, Montana, involving the construction of the Butte Townsite Patent and also the construction of several lode locations, for which patents have been issued, and which lie wholly or in part within the limits of the Butte Townsite. The question has been reviewed in the Supreme Court of the Territory of Montana in the case of Silver Bow M. & M. Co. vs. Clark, 5 Montana, 378; Talbot vs. King, 6 Montana, 76; Butte City Smoke-House Lode cases, 6 Montana, 397; and King vs. Thomas, 6 Montana, 409. Upon the authority of these cases, the Supreme Court affirmed the judgment in the case at bar.

The statement of the Supreme Court that this case is identical with the cases theretofore decided by the Supreme Court of Montana, is erroneous. In all of the cases decided in the Supreme Court

prior to this one there has been introduced in evi dence in connection with the patent relied upon by the claimant under the mining patent, a certificate from the Land Office stating the date of the application for patent and also the date of the location of the quartz claim for which a patent was asked. In the present case, no such certificate was introduced or offered in evidence, and there is nothing whatever to show that the patent for the "Gold Hill" lode claim was based upon a location or any prior appropriation of the ground in controversy. The doctrine of relation, therefore, could not in this case be invoked, for there is no proof showing any prior acts to which a patent could relate. The Court, therefore, in construing this patent must construe it of the date of its issue, January 15, 1880.

The Butte Townsite patent, under which the appellant claims, is dated September 26, 1877, and, therefore, antedates the mining patent something over two years. Without conceding the correctness of the decisions of the Supreme Court of Montana in the several cases above referred to, we submit that this case is upon an altogether different basis, and that the rule applied to those cases is not equally applicable to this one.

The appellant insists that the patent for the "Gold Hill" lode claim, containing as it does an exception, excepting all town lots, blocks, streets, etc., was not admissible in evidence until the party offering the

same showed by other proof that the ground in controversy was not embraced within this exception.

Scott's Lessee vs. Ratliffe, 5 Pet., 81.
Armstrong vs. Morrill, 14 Wal., 120.

The appellant insists that the Court erred in refusing to allow him to show that for more than five years previous to the commencement of this action the appellant had been in the possession of the ground in controversy, under a claim of title, the claim of title being deeds executed to appellant by the proper authorities, and conveying to him such interest or title as was acquired under and by virtue of the Butte City Townsite patent.

We are not unaware of the line of authorities establishing the rule invoked by the appellee and adopted by the Territorial Court to the effect that the Statute of Limitation does not run against the Government, and that the same is not set in motion until the Government has parted with its title to its grantee. We claim, however, that under the facts in this case the Government had parted with its title by the townsite grant to such extent as to bring the Statue of Limitations into operation.

The only limitation applicable in this case, imposed by the statute upon granting public lands for townsite purposes, is contained in Section 2392 of the Revised Statutes, which provide that no title shall be acquired under the townsite law to any mine of gold, silver, cinnabar or copper, or to any valid mining claim or

possession held under existing laws. If there were no such mines or mining claims within the Butte townsite at the date of its patent (and there is an entire absence of evidence upon this point) the grant of the ground in controversy certainly passed from the government by the townsite patent, and if it did the Statute of Limitations must have been set in motion upon the granting of the patent. Even had there been such a mine or mining claim covering the premises in controversy as are excepted under the provisions of the law, yet it seems that the issuing of the townsite patent containing such an exception ought to have put the statute in motion. Such, as we consider it, is the meaning of the cases of

Meehan vs. Forsythe, 24 How., 175.
Dredge vs. Forsythe, 2 Black, 563.

In each of these cases the ground in controversy, including a part, if not all, of the village of Peoria, in the State of Illinois, had been granted by legislative grant, and subsequently the government issued a patent for the same premises. The Supreme Court in these cases, while holding that the legislative grant was the prior and better grant of the two, yet held that those claiming under the patent would have color of title, and that the fact that the younger patent did not convey the title did not hinder the Statute of Limitations of Illinois from running in favor of the patentee as against the right of one claiming under the legislative grant.

These Peoria cases are not unlike in every respect the case at bar. The older patent in the one case was the legislative grant of specified land to certain persons who might be residents. In the present case (admitting that the mining patent might be proved to antedate the townsite patent by showing a prior location) the older patent is again a legislative grant consisting of the mining law of May 10, 1872, making a general, indefinite grant of mining ground to all who might comply with the provisions of the law. The two junior patents are such as are issued in the regular course of proceedings in the executive department of the government. Both expressly except all such land as had been previously granted by legislative grant. Notwithstanding this the Court, in construing this exception, in Meehan vs. Forsyth, 24 How., 178, says: "This saving clause was designed to exonerate the United States from any claim of the patentee in the event of his ouster by persons claiming under the acts referred to, and cannot be construed as excepting any lots or parcels of land from the operation of the grant, or as affording another confirmation of titles existing under the acts of Congress described in it."

The next point presented for consideration by the record is the action of the Court in refusing to allow the appellant to prove by the oral testimony of witnesses that the ground in controversy at the date of the issuance of the townsite patent was not valuable for mineral, and that there was no known minerals

existing within the said premises at the date of the issuance of such patent, or at any time since. The ground upon which the Court has uniformly refused to admit this character of proof is that the issuance of the patent determines the mineral character of the land, and that the matter has been finally adjudicated by the action of the Land Office in issuing a patent. We think it might be urged with fully as much force, that the issuance of the townsite patent adjudicated the right of entry, and that it was conclusively found by the department that the land was not mineral, and was, therefore, subject to be entered as a townsite. But in the Lower Court the appellant did not rely upon this presumption, which would naturally arise in the construction of the two patents, but offered to take the burden of proof in the matter and show that the ground was such as Congress authorized to be entered as a townsite. Whatever may be the correct rule in cases where the ground had been actually appropriated as a mining claim at the date of the issuance of the townsite patent, in a case like the present where no such location was made or has been proved, it does not seem that evidence of this character should be excluded. If the mine was not located or known to exist at the date of the townsite patent, it certainly could not be contended that the subsequent discovery of the mine would defeat the townsite patent. And with much more reason should the townsite patent be sustained, if it can be shown that the land actually is not of a character to come within the exception of the law.

To judge of the priority of these patents by a simple inspection, and then say that the younger is the older, would seem to overthrow every principle governing the construction of patents. Where two patents have been issued for the same ground, courts have gone behind them to ascertain which by relation gives the better right.

Megerle vs. Ashe, 33 Cal., 74.
Smith vs. Athern, 34 Cal., 506.
Ross vs. Barland, 1 Pet., 662.

But in no case which can be cited do we believe the principle is announced that courts will give to a subsequent patent a prior right without first ascertaining that it is actually prior. In this case the court decided in favor of the younger patent, without any proof whatever other than the patents themselves.

The question of the priority of rights granted by two patents for the same tract of ground has been recently decided by this Court in the case of Iron Silver Mining company vs. Campbell, 135 U. S, 287. Both patents issued for the ground were mineral patents. One was issued for placer ground, and the other for a quartz lode claim. The quartz patent was subsequent to the placer patent. The claimants under the quartz patent argued (as the appellee here does) and as the Lower Court held, that the issuance of the quartz patent was conclusive as to the known character of the vein for which the quartz patent was issued, and that the fact of the issuance of the patent by the Land

Office was an adjudication of the fact that the title to the ground did not pass by the first patent. This argument was completely exploded by Justice Miller in this case. It was there held that the issuance of the quartz patent decided nothing, and that the effects of the two patents, and the question of priority between them must be left to the courts to determine. That the placer patent claimants could not be divested of their rights by the action of the Land Department, and that the question of whether the vein was known to exist at the date of the application for the placer patent, was a question which must be determined in a judicial proceeding.

The quartz claimant claimed there, as he does in this case, that the elder patent lost whatever rights he had, by his failure to adverse the application for the quartz claim, and so the Lower Court held. But the Supreme Court decided that in such a case the adverse proceedings provided for by statute, were applicable only to claims which had not been perfected. That in cases where other claimants had procured patents for their claims, they might rest securely upon their rights, and leave the matter of priority to be decided by the Courts when the question arose between the patents in a judicial proceeding. Such we claim is the rule applicable in the present case.

Under the peculiar circumstances of the present case it is not necessary to decide just what effect should be given to a quartz patent or how far the same may be impeached by one claiming under a

townsite patent. The want of testimony on the part of the quartz patentee, and his failure to prove the date of his location, if any he had, renders it unnecessary to inquire what would have been his rights had he proven these facts.

There is practically no difference between an agricultural and a townsite patent. Mineral ground is not allowed to be patented in either instance. Of course this does not mean that if mineral ground, unknown at the time to be mineral, should be patented, that the subsequent discovery of mineral therein would avoid the effect of the patent. And yet it would not be contended, if the appellant was claiming under an agricultural patent, that his title could be impeached, as in this case, by a subsequent mineral patent. The most that would be claimed in such an instance would be that the agricultural patent was subject to be avoided for fraud in its procurement, if the ground was known to be mineral at the time of the application. To show this would require proof of the known mineral character in a direct proceeding to set aside the agricultural patent. Why should not the same rule apply to a townsite patent?

The Statute, Sec. 2258, provides that lands on which are situated any known salines or mines shall not be subject to the rights of pre-emption. Thus applying, so far as we are able to discern, the same rule to agricultural and townsite lands. We therefore say that the townsite being first in time is first in right until its invalidity is proven. And that the

most favorable rule for the appellee which can be applied to a case like the present one is the rule laid down in Iron S. M. Co. vs. Campbell, *supra*.

We respecfully submit that the case should be reversed.

JAMES W. FORBIS,
Counsel for Appellant.

In the Supreme Court of the United States.

OCTOBER TERM, 1890.

ANDREW J. DAVIS, Appellant.

vs.

HENRY WEIBOLD, Appellee.

No. 219.

APPEAL FROM THE SUPREME COURT OF THE TERRITORY OF MONTANA.

BRIEF FOR APPELLEE.

S. M. STOCKSLAGER,
Attorney for Appellee.

GIBNEY & ROBERTS, WASHINGTON.

most favorable rule for the appellee which can be applied to a case like the present one is the rule laid down in Iron S. M. Co. vs. Campbell, *supra*.

We respectfully submit that the case should be reversed.

JAMES W. FORBIS.
Counsel for Appellant.

Office Supreme Court U. S.
FILED,
JAN 30 1891
JAMES H. MCKENNEY
CLERK.

In the Supreme Court of the United States.

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No. 219.

APPEAL FROM THE SUPREME COURT OF THE TERRITORY OF MONTANA.

BRIEF FOR APPELLEE.

Statement of the Case.

This action is in the nature of ejectment, in which plaintiff below and appellee here seeks to recover possession of the Gold Hill Lode Mining Claim, situated in the Summit Valley mining district, in Silver Bow, formerly Deer Lodge County, Montana, and damages for the wrongful detention thereof. He claims title and the right of possession by virtue of a patent for said Lode claim, dated January 15, 1880.

The appellant claims title to the ground included in the Gold Hill Patent under and by virtue of a patent for the "Butte" town site, issued September 26, 1877, to the Probate Judge of Silver Bow County in trust for the occupants for said town. He also interposes the statute of limitations of the Territory of Montana as a defence.

The action was commenced in the District Court of the Second Judicial District, and after a trial by the Court, without a jury, on the 30th day of March, 1886, judgment was rendered against the defendant, appellant, and in favor of the plaintiff, appellee, for possession of the premises in controversy, and awarding said plaintiff a writ of restitution therefor, and a further judgment for nine hundred dollars

damages and costs of suit, a motion for a new trial was filed which was overruled on the 18th day of October, 1886.

From this judgment defendant, appellant, appealed to the Supreme Court of the Territory of Montana, which Court, on the 23rd day of July, 1887, upon the authority of King *vs.* Thomas, 6 Mont., 409, affirmed the judgment and order of the District Court, denying a motion for a new trial, with costs, and rendered judgement on said appeal.

From this judgment the defendant appealed to this Court, and filed a transcript of the record on the 13th day of October, 1887.

On the 12th day of September, 1888, appellant, by leave of the Court amended the Record by filing an amended assignment of errors, wherein he assigns the following as the errors upon which he relies:

(1) The Court erred in making a finding for defendant in error on any or all of the issues presented in the pleading and in entering judgment for defendant in error upon the evidence in the caee.

(2) The Court erred in rendering judgment for defendant in error, when it appears from the statement of the evidence that the patent under which the defendant claimed, and which was from the paramount source of title, the United States, was prior to that of the defendant in error's patent, and there was no dispute or conflict of evidence on this point.

(3) The Court erred in overruling the plaintiff in error's objection to the admission in evidence of part of the patent from the United States issued to Heinrich C. Wiebbold without proving that the premises in dispute were not town lots in the town site of Butte on said Lode.

(4) The Court erred in sustaining defendant in error's objection to plaintiff in error's proving that he had been in the actual adverse possession of the premises in dispute for five years prior to the commencement of this action.

(5) The Court erred in sustaining defendant in error's objection to the plaintiff in error, proving that at the time o-

the issuing by the United States of the Patent of the Butte town site to Orville B. O'Bannon, the premises described in plaintiff's complaint as the Gold Hill lode were not known to be valuable for mineral of any kind.

(6) The Court erred in sustaining defendant in error's objection to the plaintiff in error, proving that the Gold Hill lode had not, from the day when the patent for the Town site of Butte was issued to said O'Bannon to the date of the trial of this cause, been known to be valuable for minerals of any kind.

(7) The Supreme Court of Montana erred in sustaining the ruling of the District Court of the Second Judicial District for said Territory, in its said ruling against plaintiff in error, upon each and all of the above assigned errors. (Record, pages 37 and 38.)

Four questions are properly raised by this assignment of errors: First, the statute of limitations as a bar to the action; second, the admission of improper evidence offered by by the plaintiff; third, the refusal to admit proper evidence offered by the defendant; and fourth, the sufficiency of the evidence to sustain the finding and judgment of the Court.

The real questions presented are the statute of limitations and the admissability of the junior patent of plaintiff to the Gold Hill Lode Mining claim, which is embraced within the boundaries of the Butte town site, to which patent had been previously issued and its legal effect unaided by extrinsic evidence.

BRIEF.

The Statute of Limitations.

The first point raised is the bar of the statute of limitations.

The Statutes of Montana provide that

"No action for the recovery of real property, or for the recovery of the possession thereof, can be maintained unless it appear that the plaintiff, his ancestor, predecessor or

grantor was seized or possessed of the property in question within five years before the commencement of the action." (Sec. 29, Code Civil Procedure, Compiled Stat.)

The Supreme Court of Montana, in the case of King *vs.* Thomas, *supra*, upon the authority of which this case was decided, in the discussion of this point, said: "Did the statute of limitations begin to run with the issuance of the town site patent? That patent, as before stated, contains the following express reservation: No title shall hereby be acquired to any mine of gold, silver, cinnabar or copper, or to any valid mining claim or possession held under existing laws of Congress. The Silver King location was a valid mining claim, under existing laws of Congress, and was, by the very terms of the town site patent, excluded from its operation and effect. Then, certainly, as to this mining ground, the town site patent could not afford a basis for the statute of limitations nor set the same in motion. The cases referred to by counsel for appellant on this point (Meehan *vs.* Forsyth, 24 How., 175; Dredge *vs.* Forsyth, 2 Black, 563) are not analogous to the case at bar. In one of these cases the Supreme Court says: "Fee simple title is granted to the patentee, and his heirs, of the described tract, to have and to hold the same, together with all the rights of any and all persons claiming under the before mentioned acts of Congress. Looking at the language of the patent, it is clear that the saving clause was designed merely to exonerate the United States from any claim of the patentee, or his assigns, in the event that any other person should prove a superior title. (2 Black, 570.)

This, says the Supreme Court of Montana, is not the case here. The *mining grounds* is *expressly excluded* from the patent, not only by the *language of the patent itself*, but also by the *Act of Congress*, R. S., U. S., section 2392.

The Court also cites Gibson *vs.* Chouteau, 13 Wall., 99, wherein it is held:

"With respect to the public domain, the Constitution vests in Congress the power of disposition and of making all needful rules and regulations. That power is subject to no limitations. Congress has the absolute right to prescribe the times, the conditions, and the mode of transfering this property, or any part of it, and to designate the persons to whom the transfer shall be made. No State legislation can interfere with this right or embarrass its exercise; and to prevent the possibility of any interference with it, a provision has been usually inserted in the compacts by which new States have been admitted into the Union, that such interference with the primary disposal of the soil of the United States shall never be made. Such provision was inserted in the Act admitting Missouri, and it is embodied in the present Constitution, with the further clause that the Legislature shall not interfere 'with any regulation that Congress may find necessary for securing the title to the *bona fide* purchasers.'

"The same principle which forbids any State legislatien interferring with the power of Congress to dispose of the public property of the United States, also forbids any legislation depriving the grantees of the United States of the possion and enjoyment of the property granted by any reason of delay in the transfer after the initiation of proceedings for its acquisition. The consummation of the title is not a matter which the grantees can control, but one which rests entirely with the Government. With the legal title, when transferred, goes the right to possess and enjoy the land. and it would amount to a denial of the power of disposal in Congress of these benefits, which should follow upon the acquisition of the title, could be forfeited because they were asserted before that title was issued."

The Court thereupon held: "For these very sufficient reasons the Statute of Limitations does not begin to run against him (the miner) from the date of his location, but only after the patent has issued and the Government has finally disposed of the soil, and the miner has become the absolute owner thereof."

The express exceptions in the town site patent of the mining ground, and the subsequsnt issuance of the mineral patent therefor, proves that the legal title to the same re-

mained in the Government until the date of the said second patent. That the statute could not run against the Government is well settled. It follows, therefore, that it could not begin to run until the second patent issued.

The patent to the Gold Hill Lode, was issued January 15th, 1880, and it is conceded this action was commenced within five years after the issuance of said patent, and if appellee's position is correct, the statute did not run against him.

The appellant insists that the Supreme Court of Montana was in error in stating that this case was identical with the cases theretofore decided by that Court, in that, in all the other cases proof was made of the location, which it is insisted was not done in this case.

What the Court really said was: "*It ie conceded* that the questions for review in this case are *identical* with those heretofore decided by this Court, in the case of King *vs.* Thomas, 6 Mont., 409." (Record, page 31.) If the position insisted upon by the appellee as to the effect of the exception in the town site patent and the effect of the Gold Hill Lode Patent is correct, this question as to date of location is not material.

The appellant contends that inasmuch as the patent for the "Gold Hill" Mining Claim contains an exception of all town lots, blocks, streets, etc., it was not admissable in evidence until the party offering it showed by other proof that the ground in controversy was not embraced within this exception.

That question is settled against this contention by the decision of this Court in the case of Deffebach *vs.* Hawke, *supra*, wherein it was held that

"The position that the patent to the plaintiff should have contained a reservation excluding from its operation all buildings and improvements not belonging to him, and all rights necessary or proper to the possession and enjoyment of the same, has no support in any legislation in Congress

The land officers, who are merely agents of the law, had no authority to insert in the patent any other terms than those of conveyance, with recitals showing a compliance with the law and the conditions which it prescribed."

Following this decision, the Land Department, ever since its rendition, has refused to insert in a mining patent any reservation or condition. Such as were inserted in the "Butte" patent were inoperative and void.

The Legal Effect of a Patent.

The Supreme Court of Montana, as well as the District Court, evidently held the junior patent to be conclusive evidence of the fact that the land embraced therein was land which under the Statute and the specific exception in the elder patent to the town site, was not intended to be conveyed and was not conveyed to the occupants of the town site, but was excepted from its provisions, and that it is also conclusive evidence of the fact that the claimant took all the steps required by the law to entitle him to the patent, and the officers of the Land Department did their duty in issuing such patent.

The Land Department is a tribunal of quasi-judicial character, appointed by Congress to decide certain questions relating to the public lands, and its decisions upon matters of fact within its jurisdiction, in the absence of fraud or imposition, is conclusive everywhere else.

And when the authority to issue a patent depends upon the existence of particular facts or upon the performance of certain antecedent acts, and it is the duty of the Land Department to ascertain whether the facts existed or the acts have been performed, its determinations are conclusive of the existence of the authority against any collateral attack.

Johnson *vs.* Tousley, 13 Wall., 72.
Warren *vs.* Van Brunt, 19 Wall., 646.
Shepley *vs.* Cowen, 91 U. S., 330.
Moore *vs.* Robbins, 96 U. S., 530.

Marquiz *vs.* Frisbie, 101 U. S., 473.
Vance *vs.* Burbank, 101 U. S., 514.
Quinby *vs.* Conlan, 104 U. S., 420.
St. Louis Smelting Co. *vs.* Kemp, 104 U. S., 420.
Baldwin *vs.* Starks, 107 U. S., 463.
Lee *vs.* Johnson, 116 U. S., 48.

There can be no doubt about this being the law, as firmly established by a long and uniform line of decisions of this Court, unless it can be said that doubt is raised by the later decision in the case of The Iron Silver Mining Co. *vs.* Peter Campbell, from the District Court of Colorado, decided April 28, 1890. (135 U. S., 287.)

This Court in that case, while holding that the doctrine enunciated in the decisions above referred to is correct, held it did not apply to a case when the question involved was as to the superiority of title under two separate patents issued for the same land, if their issuance depended upon extrinsic facts not recited in the patents. Following is the language of the Court:

"When each party has a patent from the Government, and the question is as to the superiority of the title under those patents. if this depends upon extrinsic facts not shown by the patents themselves, we think it is competent, in any judicial proceeding when this question of superiority arises, to establish it by proof of these facts. We do not believe that the Government of the United States, having issued a patent, can by the authority of its own officers invalidate that patent by issuing a second one for the same property."

Of course this decision means that where there is an *unavoidable conflict* between the two patents, as was the fact in the case then before the Court, this would be the law. But where they are issued for distinct interests, and can be reconciled with each other, due credit will be given to both, and both will be upheld. (Maguire *vs.* Tyler, 75 U. S., 650; Sicard *vs.* Davis, 31st U. S., 124; Bryan *vs.* Forsyth, 60 U. S., 19.)

The Iron Silver Mining Co. case was a contest between the owner of a placer patent and the owner of a subsequent patent for a lode claim within the boundaries of the placer patent. In that case the statute specifically provided that the placer claimant might obtain title to a lode claim within the boundaries of his claim, by making a statement of such lode claim in his application for his placer patent, and paying an additional sum of two dollars and fifty cents an acre therefor; or, if the existence of such lode was not known at the date of his patent, he would obtain title to all minerals therein. Under this statute he could *obtain title to lode claims*, and no recital thereof need be made in his patent and none could be made in case its existence was unknown.

The point we wish to make is, that in that case *no one could assert title under a subsequent patent either to the surface or anything beneath the surface without a necessary conflict* with what purported by its terms to be conveyed and what *might be conveyed* under the provisions of the statute.

Not so in the case at bar. In this case the senior patent is for a town site and the junior one for a lode claim within its boundaries. Under the town-site law, there is no possible way to obtain title to any mine of gold, silver, cinnabar or copper, or to any valid mining claim or possession. By express statutory provision it is prohibited. Section 2392, U. S. R. S., which is a part of the chapter relating to town sites, is as follows:

"No title shall be acquired under the foregoing provisions of this chapter to any mine of gold, silver, cinnabar or copper, or to any valid mining claim or possession held under existing law."

In accordance with the provisions of this section, the foling exception was inserted in the town-site patent:

"No title shall be *hereby acquired* to any mine of gold, silver, cinnabar or copper, or to any valid mining claim or possession held under existing laws of Congress."

Not *known* mines only, but *existing* mines, as well as valid mining claims and possessions, are excepted by the statute and excluded by the patent. The placer claimant *might* obtain title to *mines*, but the town site occupants *could not*, even if conveyed by the terms of the patent which we have seen was not done. If then, the distinct interest conveyed by the junior patent was not conveyed, and under the statute could not have been conveyed by the senior patent, there is no conflict and both patents should be upheld.

It is true, as held in Deffeback *vs.* Hawke (115 U. S., 392), that title to land *known* at the time of sale to be valuable for minerals, cannot be obtained under the homestead, pre-emption or townsite law, or under any other than the mineral law. And it is also true that title to a mine of gold, silver, cinnabar or copper, cannot be obtained under the *town site law*, even though its existence is not known at the time of entry or patent.

It is only "*known*" salines and mines that are by the statute exempt from homestead and pre-emption entry. And under these statutes it has been always held that if there were no "known mines," at date of entry, their future discovery would not affect the title of the homesteader or pre-emptor. But the language of the statute providing for town site entries is much broader and provides that "*no* title shall be acquired under the act to *any mine* of gold, silver, cinnabar or copper. Not to any *known* mine, as in the other statutes. Why this difference in the two statutes, if they were intended to make the same exceptions?

It would not be questioning the soundness of the decision in Deffeback *vs.* Hawke, to add to it that the town site law specifically excludes from its operation all mines of gold, silver, cinnabar or copper, whether known at date of sale or not.

We are aware of the fact that the Court did not observe this distinction in that case, but we do not think that affects the force of the argument, as it was not important to make it in that case, although it was a question arising between a

placer claimant and town site occupants, for the reason, as stated by the Court, "there is no dispute as to the mineral character of the land claimed by the plaintiff. It is upon the alleged prior occupation of it for trade and business, the same being within the settlement or town site of Deadwood, that the defendant relies as giving him a better right to the property."

It will be observed also that in giving the reasons for using the expression "*known*," at the time of their sale, to be valuable for minerals, the reasoning was confined to agricultural lands only.

What then is Conclusively Proven by the Junior Patent.

It will be conceded that the facts recited in the patent are conclusively proven by it.

It is not deemed necessary to insist that it establishes conclusively the fact that there was an *existing* mine on the land, or that its existence was *known* or from obvious circumstances should have been known to the town site claimants at the date of their patent, but we do insist that our patent conclusively proves that the lode embraced in its provisions is *valuable mineral land* within the meaning of the law, which the *statute* expressly excepts from the operation of the patent to the town site, and which can only be transferred under the mineral laws.

The town site patent by its terms excluding all mines (valuable), it results that such property did not pass under it. Hence such mines, whenever discovered, could be taken under the mineral laws without infringement of the rights of the occupants under the town site patent. Therefore, when the Golden Hill Lode claimant asserted claim to mineral within the limits of the town site patent, it became their duty to adverse the claim that mineral existed beneath the surface, and, by disproving the mineral claim, preserve their exclusive right to the land embraced in their patent.

This position is in no wise affected by the decision in the Iron Silver Mining Co. case, *supra*, wherein it was held that this rule was not applicable when two patents were issued for the same land, for the reason that this town site patent contained a *continuing defeasance* as to any and all valuable mineral land embraced by it, and the claimants under that patent were required, if they wished to hold land claimed to be within the terms of such defeasance to adverse the claim and disprove it.

If they failed to adverse, and mineral claimants made regular proof of title to the land under the mineral laws, it necessarily results that a patent issued on such proof to mineral claimants would convey the ground embraced in the lode claim, and which, by terms, was excluded in town site patent, and thus the mineral patent, in absence of any adverse claim made under section 2326, R. S., would be conclusive against any other claim to this mineral ground, the existence of which had, in no way provided by law, ever been disputed.

If appellee is correct in these positions, the mineral patent was properly admitted, the evidence offered by appellant was properly excluded, the finding and judgment of the lower Court correct, and there is no error in the record.

Upon the whole case, we submit that no error appears, and the judgment of the Supreme Court of the State should be affirmed.

Respectfully submitted,

S. M. STOCKSLAGER,

Attorney for Appellee.

WASHINGTON, D. C.

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139-530

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1890.

No. 233.

THE UNION EDGE SETTER COMPANY, APPELLANT,

vs.

GEORGE E. KEITH.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF MASSACHUSETTS.

FILED OCTOBER 14, 1887.

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1-3 UNITED STATES OF AMERICA, } ss:
Massachusetts District, }

At a circuit court of the United States for the first circuit, begun and holden at Boston, within and for the district of Massachusetts, on Monday, the sixteenth day of May, in the year of our Lord one thousand eight hundred and eighty-seven, the fifteenth day of said May happening on a Sunday, before the Honorable Le Baron B. Colt, circuit judge.

UNION EDGE SETTER COMPANY, Complainant,
v.
GEORGE E. KEITH, Defendant. } In Equity.

The bill of complaint in this cause was filed in the clerk's office on the seventeenth day of February, A. D. 1885, and was duly entered at the October term of this court, A. D. 1884, and is in the words and figures following:

Bill in Equity.

To the judges of the circuit court of the United States for the district of Massachusetts:

The Union Edge Setter Company, a corporation under the laws of the State of Connecticut and a citizen of said State, brings this its bill of complaint against George E. Keith, of Brockton, in the State of Massachusetts, and a citizen of said State.

And thereupon your orator complains and says that heretofore and before the seventh day of December, 1875, Charles H. Helms was the original and first inventor of a certain new and useful improvement in sole-edge burnishing machines not known or used before and not in public use or on sale for more than two years prior to his application for a patent therefor.

And your orator further shows unto your honors that the said Charles H. Helms, so being the inventor of said improvement in sole-edge burnishing machines, made application to the proper department of the Government of the United States for letters patent in accordance with the then existing acts of Congress, and duly complied in all respects with the conditions and requirements of said acts, and that on the eighth day of February, 1876, letters patent of the
4 United States, numbered 173,284, signed, sealed, and executed in due form of law, for the said invention or discovery were issued to said Charles H. Helms, whereby there were secured to him, his heirs, executors, administrators, or assigns, for the term of seventeen years from the eighth day of February, 1876, the full and exclusive right of making, using, and vending the said invention or discovery throughout the United States and the territories thereof; all which by said letters patent, or by a duly certified copy thereof now in court produced and shown to your honors, will more fully appear.

And thereupon your orator complains and says that heretofore and before the thirteenth day of September, 1881, Robert Ashe was the original and first inventor of a certain new and useful improvement in edge-setting machines not known or used before and not in public use or on sale for more than two years prior to his application for a patent therefor.

And your orator further shows unto your honors that the said Robert Ashe, so being the inventor of said improvement in edge-setting machines, made application to the proper department of the Government of the United States for letters patent in accordance with the then existing acts of Congress, and duly complied in all respects with the conditions and requirements of said acts, and that on the seventh day of December, 1881, letters patent of the United States, numbered 251,154, signed, sealed, and executed in due form of law, for the said invention or discovery were issued to George W. Copeland, assignment thereof having been made to said Copeland and duly recorded in the United States Patent Office prior to the issue of said letters patent, whereby there were secured to him, his heirs, executors, administrators, or assigns, for the term of seventeen years from the twentieth day of December, 1881, the full and exclusive right of making, using, and vending the said invention or discovery throughout the United States and the territories thereof; all which by said letters patent, or by a duly certified copy thereof now in court produced and *sworn* to your honors, will more fully appear.

And thereupon your orator complains and says that heretofore and before the ninth day of January, 1882, Robert Ashe was the original and first inventor of a certain new and useful improvement in edge-setting and burnishing machines not known or used before and not in public use or on sale for more than two years prior to his application for a patent therefor.

And your orator further shows unto your honors that the said Robert Ashe, so being the inventor of said improvement in edge-setting and burnishing machines, made application to the proper department of the Government of the United States for letters patent in accordance with the then existing acts of Congress, and duly complied in all respects with the conditions and requirements of said acts, and that on the fourteenth day of March, 1882, letters patent of the United States, numbered 254,859, signed, sealed, and executed in due form of law, for the said invention or discovery were issued to George W. Copeland, assignment thereof having been made to said Copeland and duly recorded in the United States Patent Office prior to the issue of said letters patent, whereby there were secured to him, his heirs, executors, administrators, or assigns, for the term of seventeen years from the fourteenth day of March, 1882, the full and exclusive right of making, using, and vending the said invention or discovery throughout the United States and the territories thereof; all which by said letters patent, or by a duly certified copy thereof now in court produced and shown to your honors, will more fully appear.

And your orator further shows unto your honors that on or about

the twenty-eighth day of February, A. D. 1877, by assignment duly recorded in the United States Patent Office, all right title, and interest in, to, and under said letters patent No. 173,284 became vested in your orator; all which by said assignment, with the certificate of the recording thereof thereto annexed, or by duly certified copies thereof now in court produced and shown to your honors, will more fully appear.

And your orator further shows unto your honors that before the first day of January, A. D. 1884, by mesne assignments duly recorded in the United States Patent Office, all right, title, and interest in, to, and under said letters patent No. 251,154 and No. 254,859 became vested in your orator; all which by said assignments, with the certificate of the recording thereof thereto annexed, or by duly certified copies thereof now in court produced and shown to your honors, will more fully appear.

6 And your orator further shows unto your honors that the exclusive rights so vested in your orator are of very great value and importance, and that the said patented inventions have been extensively used, and that the demand therefor is very large, and that your orator and its predecessors created said demand at large expense and is now abundantly able to supply the demand.

Yet the defendant, well knowing the premises and the rights secured to your orator as aforesaid by the letters patent No. 173,284, No. 251,154, and No. 254,859, and utterly disregarding the same, has, at Brockton, in said district, and at divers other places in the United States, in violation of the rights secured by said letters patent, and ever since the first day of July, 1884, unlawfully used the said patented inventions and used many machines each embodying in construction and mode of operation substantial and material parts of said patented inventions, and, although notified of the infringement and requested to desist therefrom, still continues so to do; and the defendant has derived, and is still deriving, from such use of said inventions large gains and profits, but to what amount your orator is ignorant and cannot set forth, and your orator is greatly damaged by such wrongful acts and doings of the defendant, to wit, in the sum of ten thousand dollars.

And your orator further shows unto your honors that *he* will be subject to great and irreparable damage unless your honors will grant the relief hereby sought.

To the end, therefore, that the defendant may upon oath full, true, direct, and perfect answer make to all and singular the matters hereinbefore stated and charged as fully and particularly as if the same were hereinafter repeated and he thereunto distinctly interrogated, according to the best of his knowledge, information, and belief;

And that the defendant and the attorneys, agents, servants, and workmen of the defendant may be enjoined perpetually, and also during the pending of this suit, by writs of injunction to be issued by this honorable court, from making, using, or selling the invention patented in said letters patent No. 173,284, No. 251,154, and No. 254,859, or any material and substantial part thereof claimed therein as new;

And that the defendant may be decreed to account for and
7 pay over to your orator all the gains and profits that have accrued to him from using said inventions, or any material and substantial part thereof claimed in the said letters patent No. 173,284, No. 251,154, and No. 254,859 as new; and that the damages sustained by your orator may be assessed, and the defendant be decreed to pay over to your orator, in addition to such gains and profits, the damages your orator has sustained by such unlawful acts and doings;

And for such other and further relief as to your honors may seem meet—

May it please your honors to grant unto your orator not only the writs of injunction conformable to the prayer of this bill, but also the writ of subpœna, directed to said George E. Keith, commanding him to appear and answer to this bill of complaint, and to do and receive what to your honors — seem meet.

And your orator will ever pray.

(Signed) THE UNION EDGE SETTER CO.,
By G. H. P. FLAGG, *President.*
(Corporate Seal.)

J. E. MAYNADIER,
Solicitor and of Counsel.

On the sixth day of May, A. D. 1884, the following answer was filed:

Defendant's Answer.

This defendant, now and at all times saving and reserving unto himself all and all manner of benefit and advantage of exception that may or can be had or taken to the many errors, uncertainties, insufficiencies, and imperfections in the complainant's said bill of complaint contained, for answer thereto or unto so much and such parts thereof as he is advised it is material or necessary for him to make answer unto, answering, says:

1st. That he has no knowledge or information, save by said bill of complaint, whether or not the complainant is a corporation duly organized under the laws of Connecticut, and therefore does not
8 admit the same, but leaves the complainant to make such proof thereof as it may be advised is material.

2d. That this defendant is informed and believes that letters patent of the United States No. 173,284, dated February 8th, 1876, for an improvement in sole-edge burnishing machines, were issued to Charles H. Helms, as also letters patent No. 251,154, dated Dec. 20th, 1881, and letters patent No. 254,860, dated March 14, 1882, for improvements in sole-edge burnishing machines, were issued to Robert Ashe, but he denies that the said Helms was the original and first inventor of the alleged improvement set forth in said first-named letters patent, or that said Ashe was the original and first inventor of the alleged improvements set forth and described in said two last-named letters patent.

3d. That this defendant is not informed, save by said bill of complaint, whether or not the said several letters patent or either or any

of them have been duly assigned of record to said complainant, as alleged in its said bill, and therefore, not admitting either such assignment or record thereof, leaves the complainant to make such proof of the same as it may be advised.

4th. That this defendant has no positive knowledge or information as to whether the said several alleged inventions purporting to be respectively secured to said Helms and said Ashe as aforesaid are of great value, or whether the same have been extensively used, or whether the said complainant and its predecessors have created a demand therefor at a great expense, or whether the said complainant is able to supply the demand for such articles, or whether any demand exists or has ever existed therefor, and therefore does not admit the same; but defendant is informed and believes that the alleged inventions secured by or claimed in said several letters patent are each and all worthless and ever have been; that not more than twelve machines were ever made under and in accordance with said Helms patent, and that none whatever were ever made under either of said Ashe patents, and none of said twelve machines are nor have for many years been in use, and that all three said letters patent of complainant's are mere "paper patents," not practised now or even heretofore by complainant, and are by it only used as a legal "scarecrow" to prevent others from entering into com-
9 petition with its business of making and selling edge-burnishing machines under other patents entirely unlike anything shown, described, or claimed in said three letters patent or either of them.

5th. That this defendant denies that the complainant's rights under said three several letters patent have been heretofore respected as alleged, but, upon information and belief, avers *that* the contrary to be true, and he denies that he has at any time since the alleged acquisition of title in and to said several patents or either of them by complainant, within the district of Massachusetts or elsewhere, in any way or manner infringed or violated any rights granted or purported to be granted to either said Helms or said Ashe by or under said letters patent or either or any of them.

6th. That this defendant denies that the said Helms was the original and first inventor or discoverer of the supposed invention described and claimed in said letters patent No. 173,284, or that the said Ashe was the original and first inventor or discoverer of the supposed inventions described and claimed in said letters patent No. 251,154 or 254,860, or that they were the original and first inventors or discoverers of divers material and substantial parts of the things patented to them respectively; but, on the contrary, upon information and belief, he avers and charges the facts to be that long prior to the alleged invention of said Helms or of said Ashe respectively embodied in their said letters patent the same improvements in sole-edge burnishing machines, or substantial and material parts thereof, were known to and publicly used by many persons in this country or elsewhere, and were known to and used by Oliver G. Critchett, of and at Belfast, Maine; also known to Robert Ashe, of Somerville, Mass., at the city of Boston, Mass.; and to Albert Leavitt, of Boston,

Mass, at Quincy Mass.; and to Edwin E. Bean, of and at Boston Mass.; and to J. Wesley Dodge, of and at Malden and at Boston, in said State; and to Samuel N. Corthell, of and at Quincy, Mass., and at Boston, in said State; and to Charles F. Pollard, of and at Lynn, and also at Boston, in said State; and to Charles J. Addy, of and at Malden, and also at Boston, in said State, and also by many other persons whose names and residences and places of business where such knowledge and use were had are at present unknown to this defendant, but which when discovered this defendant craves leave to insert herein and make part of this answer.

10 7th. That this defendant, upon information and belief, avers that the said Helms was not the original and first inventor of the alleged improvements described and claimed in said letters patent No. 173,284, nor was said Ashe the original and first inventor of the alleged improvements described and claimed in said letters patent No. 251,154 and No. 254,860, but that the same, or substantial and material parts thereof, respectively were patented or described in some printed publications more than two years prior to the application for said letters patent or either of them, and particularly in the following-named letters patent of the United States to-wit: To Benjamin J. Tayman, assignor, &c., for improvements in machine for trimming the soles of boots and shoes, No. 136,790, dated March 11, 1873, reissue No. 9073, dated February 10, 1880.

To Nathaniel S. Thompson, for improvement in shoe-edge burnishing machine, No. 50856, dated Nov. 7, 1865.

To J. P. Molliere, for improvement in polishing shoe soles, No. 13950, dated December 18, 1855.

To L. Graf, for improvement in heel and edge polishing machine for boots and shoes, No. 174,231, dated February 29, 1876.

To Augustus C. Carey, assignor, &c., for improvement in sole-edge burnishing machine for boots and shoes, No. 129,457, dated July 16, 1872.

Also in the English patents—

To Julian Bernard, No. 2657, dated and granted Nov. 11, 1856, and Pierre Francois Gubault, numbered 877, and dated and granted March 14, 1868.

Also in United States patents—

To A. C. McKnight, No. 123,785, dated February 20, 1872; V. K. Spear, No. 115,651, dated June 6, 1871; Isaac Van Nouhuys, No. 141,678, dated August 12, 1873; Joshua Beasly, No. 135,259, dated January 28, 1873, and Thomas P. Young, No. 195,069, dated September 11, 1877.

8th. That this defendant, upon knowledge, information, and belief, avers that machines for burnishing the edges to soles of boots and shoes and for similar work embodying, among other, the following devices, rotary and reciprocating burnishers; burnishing tools formed with a projection or lip upon one or both sides of the

11 burnishing or finishing face of the tool; elastic and adjustable tool-holders; both a fixed and an adjustable gauge or rest for either the face or the edge of the sole; gauges and rests adapted to be adjusted in relation to the tool, both vertically and horizon-

tally; finger rests, fixed and adjustable, are each and all old and well known to the public, and were so known and open to public knowledge and use and were used long before the alleged invention of said Helms, as set forth and described in letters patent No. 173,284, or before the alleged inventions of said Ashe, as described and shown in his said letters patent and relied on in complainant's said bill; and as exhibiting the said anticipations, and as showing the state of the art, and as embodying material and substantial parts of the alleged inventions of said Helms and said Ashe, the following letters patent of the United States are cited in answer, viz:

To A. C. Carey, No. 147,551, dated February 17, 1874.
To T. K. Reed, No. 116,866, dated July 11, 1871.
To D. McLaughlin, No. 113,546, dated April 11, 1871.
To C. A. Smith, No. 129,995, dated July 30, 1872.
To James H. Bassett, No. 167,874, dated September 21, 1875.
To J. & J. Beasley, No. 141,984, dated August 19, 1873.
To J. & J. Beasley, No. 141,983, dated August 19, 1873.
To Charles J. Addy, No. 135,745, dated February 11, 1873.
To Charles W. Glidden, No. 143,899, dated October 21, 1873.
To Charles W. Glidden, No. 143,690, dated October 14, 1873.
To Caroline Vrooman, adm'x, No. 139,636, dated June 3, 1873.
To Charles J. Addy, No. 151,819, dated June 9, 1874.
To Henry Grover, No. 156,848, dated November 17, 1874.
To C. H. Helms, No. 156,732, dated November 10, 1874.
To Leopold Graf, No. 147,125, dated February 3, 1874.
To Leopold Graf, No. 151,872, dated June 9, 1874.
To Gardner C. Hawkins, No. 122,462, dated January 2,1872.
To Gardner C. Hawkins, No. 145,943, dated December, 30, 1873.
To C. J. Addy, No. 169,884, dated November 16, 1875.
To Richard C. Lambert, No. 152,388, dated June 23, 1874.
To Richard C. Lambert, No. 160,529, dated March 9, 1875.
To A. J. Wilbur, No. 172,539, dated January 18, 1876.
To J. Bensby, No. 135,259, dated January 28, 1873.
12 To A. C. Carey, No. 147,552, dated February 17, 1874.
To B. Q. Budding, No. 42555, dated May 3, 1864.
To J. H., J. M., & H. Q. Thompson, No. 10239, dated November 15, 1853.
To Louis Coté, No. 104,560, dated June 21, 1870.
To R. L. Burns, No. 97758, dated December 14, 1869.
To E. T. Ingalls, No. 28181, dated May 8, 1860.
To R. Q. Budding, No. 39546, dated August 18, 1863.
To J. H., J. M., & H. Q. Thompson, No. 12877, dated May 15, 1855.
To C. H. Helms, No. 31666, dated March 12, 1861.
To Gould & Hall, No. 23245, dated March 15, 1859.
To Samuel W. Chamberlin, No. 32859, dated July 3, 1861.
To B. Q. Budding, No. 82798, dated October 6, 1868.
To V. R. Spear, No. 72105, dated December 10, 1867.
To Hawkins, Mead & Spear, No. 113,658, dated April 11, 1871.
To James H. Howard, No. 123,566, dated February 13, 1872.
To James H. Howard, No. 127,722, dated June 11, 1872.

To C. H. Helms, No. 115,853, dated June 2, 1871.
To C. H. Helms, No. 117,283, dated July 25, 1871.
Also in English letters patent as follows, viz:
To Julian Bernard, No. 1999, dated September 2, 1859.
To Julian Bernard, No. 890, dated October 18, 1854.
To C. H. Southall and R. Heap, No. 2755, dated November 6, 1863.
To Keats & Clark (provisional), No. 362, dated February 11, 1864.
To C. H. Southall and John Blakey, No. 3048, dated November 21, 1870.

9th. Further answering, this defendant says that he is informed and believes that the edge-burnishing machine used by him and for which, as an alleged infringement of complainant's said patents, this suit is brought, is made under and in strict accordance with letters patent of the United States No. 313,155, dated March 3, 1885, and issued for an invention of said Robert Ashe, and that nothing embodied in said patent or machine is secured by any claim in either of complainant's said three patents.

10th. That this defendant, further answering, denies all and all manner of infringement upon any supposed rights of the complainant under letters patent No. 193,284 or 251,154 or 254,860, and
13 denies that he contemplates or threatens any infringement, as is by said bill alleged; denies that he has made or received any gains or profits whatever for which the complainant may or can lawfully demand against him; denies that the complainant has been injured in any manner by any acts or supposed acts of this defendant; denies all unlawful acts charged, and avers that the complainant is not entitled to any injunction, damages, or account whatever or to any other relief in the premises as prayed for in its said bill; without this, that there is any other matter, cause, or thing in said complainant's said bill contained material or necessary for this defendant to make answer unto and not herein and hereby well and sufficiently answered, confessed, traversed, and avoided or denied is true to the knowledge and belief of this defendant, but, by way of protestation, denying the same, *and* humbly prays to be hence dismissed with his reasonable costs and charges in this behalf most unjustly and wrongfully sustained.

GEO. E. KEITH.

UNITED STATES OF AMERICA,
District of Massachusetts, County of Suffolk, } ss:

On this twenty-ninth day of April, A. D. 1885, before me personally appeared the above-named George E. Keith and made oath that he has read the above answer subscribed by him and knows the contents thereof, and that the same is true of his own knowledge except as to matters which are therein stated to be on his information and belief, and as to those matters he believes them to be true.

[SEAL.] WILLIAM R. RICHARDS,
Notary Public.

This cause was thence continued to the May term, A. D. 1885, when, on the twenty-eighth day of May, the following replication was filed:

14 *Replication.*

This repliant, saving and reserving to itself all and all manner of advantage of exception to the manifold insufficiencies of said answer, for replication thereunto says that it will aver and prove its said bill to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the defendant is untrue and insufficient to be replied unto by this repliant; without this, that any other matter or thing in the answer contained material or effectual in the law to be answered unto, confessed and avoided, traversed or denied, is true; all which matters and things this repliant is and will be ready to aver, maintain, and prove as this honorable court shall direct, and humbly prays as in and by its bill of complaint it has already prayed.

By its solicitor, J. E. MAYNADIER.

15 This cause was thence continued to the October term, A. D. 1885, when, on the sixth day of May, 1886, publication of the testimony having passed in the clerk's office, the same is set down for hearing and fully heard by the court. This cause was thence continued under advisement to the May term, 1886, when, to wit, August 19, the opinion of the court directing a decree for complainant was announced. On the fourteenth day of September, 1886, the following petition for rehearing was filed:

Petition for Rehearing.

Defendant respectfully petitions this honorable court for a rehearing upon the original record for the following special matters and causes, to wit:

First. The grounds of defence are embraced under two general subdivisions—first, that the burnishing iron or tool C, the finger hook D, and the front face of the hook which projects below the tool to serve as a rest for the face of the sole constituted the three elements named in claim 1, which was alleged to be infringed, and that if the court adopted this construction of complainant's patent, then defendant did not infringe, as the front of his finger hook did not so project and could not serve as a rest for the face of the sole; second, that if the court did not adopt this construction of the patent, but held, as complainant insisted, that the finger hook D, the tool C, and the guard or lip at the back side of the tool (and integral therewith) were the elements embodied in claim 1, then the patent was void, because there was not a patentable combination.

Second. That there is in the record pertinent testimony tending to prove that if the finger hook performed but the single function asserted by complainant, a support for the finger of the operator,

then neither the hook nor the tool performed any new function or were in any manner qualified in their action by each other.

16 Third. That the court having adopted complainant's construction of its patent the decree should be for defendant, because such construction in the light of the evidence and the law did not leave a patentable combination in claim 1 of the patent (which claim was alone in question).

Fourth. That while the court has adopted the construction of complainant's patent which it contended for, and has therefore held that defendant did infringe, yet the court has not passed upon the second ground of defendant's contention, and has not decided the question whether the elements found by the court to be embodied in claim 1 do or do not constitute a patentable combination.

Fifth. That it is equally as assential to the rights of defendant that the court specifically decide the second ground of defendant's contention as the first, as the first went only to the question of infringement by defendant, while the second went to the validity of the patent, and was therefore equally vital to defendant and of greater importance to the public.

Sixth. That until every material and vital issue raised by defendant had been considered and passed upon by the court a decision in the case could not be given without injustice to defendant, and that without such decision no restraining order should have been issued; hence the court is respectfully requested to vacate the injunction until the rehearing herein prayed for shall be had.

T. W. PORTER,
Of Counsel for Defendant.

This cause was thence continued to the October term, A. D. 1886, when, to wit, Nov. 3, 1886, the petition of the defendant for a rehearing was granted, and this cause was fully heard by the court on the eleventh day of February, A. D. 1887, upon pleadings and proofs herein and affidavits filed in the cases of this complainant against David Cummings *et al.* and George Prouty *et al.*, which affidavits were made a part of the evidence in this cause by the following stipulation:

17 *Stipulation.* (*Filed by Consent as of Jan.* 3, 1887.)

It is agreed that all the depositions and affidavits on file in this suit and in the suits brought by this complainant against Prouty *et al.* and Cummings *et al.* shall be taken and considered as depositions taken and used in this suit.

J. E. MAYNADIER,
For Complainant.
T. W. PORTER,
For Defendant.

This cause was thence continued under advisement to this present May term, A. D. 1887, when the opinion of the court is announced and the following final decree is entered:

Final Decree. (*Entered June* 6, 1887.)

This cause came on to be further heard at the October term, A. D. 1886, and was argued by counsel; and thence this cause was continued under advisement to this present May term, 1887; and now, to wit, June 6, 1887, upon consideration thereof, it is ordered, adjudged, and decreed that the bill of complaint in this cause be, and the same is, dismissed with costs for the defendant, taxed at —.

18 From this decree the complainant claims an appeal to the Supreme Court of the United States and gives good and sufficient security that it will prosecute its appeal to effect and answer all damages and costs if it fails to make its plea good, and said appeal is allowed.

A true record.

JOHN G. STETSON, *Clerk.*

The following evidence was used at the hearings of said cause before said circuit court May 6, 1886, and February 11, 1887:

19 *Evidence for Complainant.*

Taken pursuant to the 67th rule of the Supreme Court of the United States, in equity, as amended, before me, William A. Copeland, special examiner.

BOSTON, *Sept.* 22, 1885.

Present: James E. Maynadier, Esq., of counsel for complainant; T. W. Porter, Esq., of counsel for defendant.

It is stipulated before the examiner as follows:

(1.) The other suit now pending, being No. 2125, this complainant against J. & H. Fitzpatrick, shall abide the result of this suit.

(2.) All the testimony taken in the suit No. 1758, in equity, Union Edge Setter Company *v.* B. F. Spinney *et al.*, shall be regarded as if retaken in this suit precisely and for all purposes as if each deponent in No. 1758 had been sworn and testified in this suit.

(3.) All stipulations and admissions in suit No. 1758 are hereby made in this suit, so far as pertinent and material.

(4.) All paper and other exhibits put in evidence in said suit No. 1758 are hereby put in evidence in this suit, so far as pertinent or material.

(5.) The printed record in said suit No. 1758 may be used without reprinting as a portion of the record in this suit.

(MEMORANDUM.—The printed record in said suit No. 1758, Union Edge Setter Company *v.* Benjamin F. Spinney *et al.*, is volume II of this transcript of record as made up for transmission to the Supreme Court of the United States.—John G. Stetson, clerk.)

(6.) Defendant's counsel admits that the defendant in this suit has used since the date of the Helms patent in suit and before and ince the filing of the bill machines for setting the edges of soles

substantially like the machine now produced and marked Exhibit Keith Machine.

(7.) The two letters patent in the bill of complaint mentioned, Nos. 251,154 and 254,859, granted to Robert Ashe are not included in this suit, and the bill shall be regarded as if both said
20 patents were not mentioned therein, and this stipulation applies also to the bill in suit No. 2125 above named.

WILLIAM A. COPELAND,
Special Examiner.

Deposition of Joseph P. Livermore.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

BOSTON, *Sept.* 22, 1885.

Int. 1. What is your name, age, residence, and occupation?

Ans. Joseph P. Livermore; 30; Cambridge, Mass.; solicitor of patents and mechanical expert.

Int. 2. What experience have you had as solicitor of patents and expert in suits relating to letters patent?

Ans. I have been engaged as solicitor of patents for over five years, in which occupation I have prepared specifications for patents for inventions and have had occasion to compare descriptions of machines and devices, mostly those found in letters patent. I have several times testified as expert in patent cases.

Int. 3. Are you acquainted with the state of the art of burnishing the edges of soles as it was in 1875? And state what substantial advance, if any, was made in that art by the invention described in the Helms patent, No. 173,284, dated Dec. 7, 1875, giving your reasons for any opinions you may express.

Ans. I have carefully studied the patent to Helms, No. 173,284, and understand the nature and operation of the things described in that patent. I have also examined the patents introduced in evidence in the suit of The Union Edge Setter Co. *v.* B. F. Spinney *et al.* and the patents enumerated in the 8th clause of defendant's answer in that suit and understand the state of the art as represented by the said patents. Prior to 1875 there were several different plans of burnishing the edges of boot and shoe soles, which I will now briefly describe:

20*a* First, the plan of burnishing by hand, in which a hand tool is employed having a burnishing portion called the bed of the tool, which is shaped to fit the edge of the sole and is rounded or convex in the direction of movement parallel with the sole, and a guard or finger which rests against the face or tread of the sole, and a lip which runs in the rand between the sole and the upper. This tool has a shank or handle which is grasped by the workman, who then vibrates the tool to and fro along the edge of the sole, pressing the bed of the tool firmly against the sole edge, which is hardened and polished or burnished by the to-and-fro rubbing action of the tool upon it. The tool is guided or retained in proper

position on the sole edge by the lip and guard, and the lip also burnishes or polishes the upper face or rand of the sole. These tools are of various shape in cross-section at right angles to their line of rubbing movement according to the shape desired for the sole edge. The operator in using the tool can watch its effect upon the sole edge and vary its position so that it bears properly at each part and will operate it for a greater or less length of time at each part as may be required.

In another plan of burnishing, the edge of the sole is acted upon by a rotating tool, the periphery of which is shaped in radical section to correspond with the shape desired for the sole, which is pressed against the rotating surface of the tool and polished by its rubbing action. There are several varieties of machines employing a rotary burnishing tool, among which are those in which the shoe is held on a jack while being operated upon by the rotating tool. Among these is the one shown in the patent to Beasley & Beasley, No.141,983, dated Aug. 9, 1873, in which the shaft of the rotating tool is movable in a plane at right angles to its axis of rotation and the tool is pressed against the different parts of the sole edge by the operator.

In another variety of machines the shaft of the rotary tool turns in fixed bearings, and the shoe is held in the hands of the operator, who presents the different parts of its edge to the rotary tool. Among the machines of this class are those shown in the patent to Tayman, No. 136,790, March 11, 1873; patent to Thompson, No. 50856, Nov. 7, 1865, and to McLaughlin, No. 113,546, April 11, 1871. The two latter have gauges against which the sole of the shoe is held, and which determine the position of the sole edge with relation to
21 the tool.

In another plan the burnishing tool has a vibratory movement, and the shoe is held on a jack while being presented to the tool. Machines for burnishing on this plan are illustrated in the patent to L. Graf, 147,125, Feb. 3, 1874, in which the tool is vibrated in a definite path and the jack has such movement as to bring the different parts of the sole edge in position to be operated upon by the tool, and patent to Beasley & Beasley, No. 141,984, Aug. 19, 1873, in which the box or frame-work which supports the vibrating tool has a universal movement in a plane parallel with that in which it vibrates, and this frame-work is moved by the operator to carry the tool over different parts of the sole edge.

Another plan of burnishing is represented in patent to Carey, No. 129,457, July 16, 1872, in which there are two shafts rotating in opposite directions and carrying burnishing tools which revolve in opposite directions about the axes of these shafts and are so arranged that their circles of revolution coincide at the point where the tools are to operate on the sole edge. In this machine the shoe is to be held in the hands of the operator, and there is a gauge which receives the face of the sole and determines the position of the sole edge with relation to the tools in this machine. The tools, instead of merely rubbing along the edge of the sole with considerable pressure, as is required for burnishing, swing down towards and strike with a blow upon the sole edge, making it extremely

difficult, if not practically impossible, to get the proper rubbing action with sufficient pressure to burnish the sole edge.

In the plan of burnishing by rotary tools the sole edges are polished rapidly, and such tools are employed commercially for certain classes of work, but the quality of work done by them is not the same as that done by hand tools, lacking the hardness and durability of finish attained by hand burnishing. The machines in which the shoe is jacked and subjected to the action of a vibrating tool are objectionable on account of the expenditure of time in jacking the shoes and also from the difficulty of regulating to a nicety the position of the tool with relation to the sole edge and the pressure of the tool against the sole edge so that all parts of the sole edge will be rubbed properly to produce the desired finish as is done in hand work.

21*a* The Helms plan of burnishing consists in vibrating by power a burnishing tool having a burnishing portion and guard which rests against or lies over the face of the sole in the burnishing operation and in having a free space around this tool so that the shoe held in the hands of the operator may be turned or inclined in any direction without obstruction. The bed or burnishing face of the tool is nearly horizontal, and the shoe held in the hands of the operator is applied below it so that the operator can exert the full pressure from the upward lift of his arms and muscles of his body and can watch the effect of the tool at each point on the sole edge, and thus subject each part to the needed pressure for the required length of time, rocking the shoe slightly as may be required to bring the entire width of the sole under the rubbing action and thus getting the exact quality of hand work.

In burnishing the toe parts of shoes by the Helms plan the hand grasping the heel is below the hand holding the toe portion near the tool, and in this position the operator cannot hold the shoe sufficiently firmly against the to-and-fro movement of the tool, and consequently the Helms plan of burnishing also includes means for supporting the hand of the operator and shoe held by it against the vibrating movement of the tool. This is effected in the Helms machine by the finger rest, which is placed below and a little at the rear of the vibrating tool so that it can be clasped by the finger of the hand holding the toe end of the shoe and will resist the vibrating movement of the tool.

I neglected to mention the plan of burnishing illustrated in the English patent to Gubault, No. 879, of 1868, in which the shoe is held in the hands of the operator and presented to a tool vibrated by power. This plan is substantially different from the Helms plan in that a gauge or support is used for the sole of the shoe determining its position with relation to the tool instead of affording freedom for the workman to present it in the varying positions which may be required to secure the proper action of the tool at each point so as to attain the quality of hand work.

(Noon recess.)

Int. 4. Please compare Exhibit Keith Machine with the machine

described in the Helms patent and state wherein they resemble one another in matters of substance new with Helms.

22 Ans. The Keith machine is substantially the same as the machine described in the Helms patent in that it has a power-driven vibrating burnishing tool with a free space around it affording perfect freedom to the operator in presenting the shoe to the tool, the burnishing face or bed of which is downward, so that the operator presses the sole edge against it with the lifting force of the arms and muscles of the body, as in the Helms plan of burnishing, and can watch the effect of the burnishing tool so that all parts of the sole edge may be presented properly and acted upon for the required length of time. The burnishing tool has a bed or burnishing portion and a guard which rests against or lies over the edge of the sole just as in the tool of the Helms machine; and the Keith machine also has the finger rests below and at the rear of the burnishing tool for the operator to take hold of with the fingers of the hand holding the toe portion of the shoe while the hands are one above the other in the operation of burnishing the toe portion of the sole edge, the same as in the Helms machine and plan of burnishing.

Int. 5. What are the practical advantages of the Helms and Keith machines compared with other burnishing machines? I mean only those advantages which are common to both the Helms and Keith machines.

(Objected to, as the question assumes that the Helms and Keith machines are distinguished from all other machines, which is a question for the court, and not for the counsel or the witness, and is essentially leading.)

Ans. The advantage of the Helms and Keith machines compared with burnishing machines having rotary burnishers is in the difference in quality of the finish produced. One advantage of the Helms and Keith machines over all machines containing a jack is the saving of time consumed in jacking the shoe, and another advantage over all machines of which I have knowledge is in the absolute freedom of movement of the shoe with relation to the burnishing tool; and one advantage of the Helms and Keith machines over those machines in which the shoe is presented by hand to a power-driven vibrating tool consists in the means for affording perfect control and steadiness of the hand and shoe held by it while operating upon all parts of the sole edge.

(Adjourned.)

22*a* BOSTON, *Sept.* 23, 1885.

Cross-examination by T. W. PORTER, Esq., of counsel for defendant:

Cross-int. 6. Please state whether or not from your knowledge of the state of the art at the date of the complainant's patent you believe rotary and vibrating power-driven burnishing tools were both equally well known.

Ans. I believe they were.

Cross-int. 7. Do you regard Helms, at the date of complainant's patent, to have been the first to burnish shoes with a power-driven vibrating tool, the operative face of which was nearly horizontal, and in using which the sole was held nearly vertical and manipulated by the hand of the operator?

Ans. I do regard Helms to be the first to burnish sole edges by the means referred to.

Cross-int. 8. Do regard Helms as being at the date of complainant's patent the first to employ a finger rest or hook in connection with a burnishing tool in burnishing shoe soles?

Ans. I regard him as the first to employ a finger rest in connection with a vibrating burnishing tool for the purpose of enabling the operator to resist the vibrating movement of the tool. The patent to Thompson, No. 50856, shows a part of the gauge used with a rotary tool in such position that the operator might place his finger against it to steady the hand, but its function would be substantially different from that of Helms's finger rest, as there would be no vibrating movement to resist.

Cross-int. 9. Is the patent to Thompson referred to in your last answer the only one in your knowledge antedating complainant's patent in which the finger-hook or rest is employed in connection with a burnishing tool? If not, please state in what other patents it was so employed.

Ans. I do not recollect any other in which a finger rest is so employed.

Cross-int. 10. Please examine the patent to Carey, No. 129,457, dated July 16, 1872, and the patent to Tayman, No. 136,790, dated March 11, 1873, and state whether or not in either or both
23 you find an element which might serve as a support for the finger while manipulating the shoe. (The patents referred to are put in evidence and marked Def'ts' Exhibit Carey Patent of 1872, W. A. C., sp'l ex'r, and Def'ts' Exhibit Tayman Patent.)

Ans. I have examined the Carey patent and find in connection with the revolving burnishing tools a guide plate against which the bottom of the shoe is held in presenting the edge to the action of the burnisher. This guide plate, I should judge, might be touched by the fingers of the operator to assist in steadying the hand, but it is a flat plate of considerable width, so that I do not think that the finger could be clasped around it to effectually resist a vibrating movement.

The Tayman patent shows a finger rest, but not in connection with a burnishing tool; it is, on the contrary, used in connection with a rotary cutter for trimming the sole edge, and its function is no like that of the Helms finger rest, to enable the operator to resist a forcible vibrating movement, but merely to steady the hand very much as a person steadies the hand by resting the fingers on the paper in drawing with a pencil.

Cross-int. 11. If at the date of Helms's alleged invention of the machine shown in complainant's patent it was common or well known to employ a finger rest or support in connection with a rotary

burnishing tool, do you think it required invention, in a patentable sense, to embody such a support in a machine having a vibrating tool?

Ans. I do; for the reason that the finger rest enters into a new organization and performs a different function.

Cross-int. 12. Please state whether or not you regard the hook D shown in complainant's patent as materially different from that shown at G in the Exhibit Carey Patent of 1872, No. 129,457. In other words, do you regard the form of the finger support in complainant's patent as a material and essential element?

Ans. I do regard Helms's hook D as different materially from the guide plate G of the Carey patent, which is a gauge for the shoe sole. I do not regard the form of the finger support as material so long as it is of proper form to be clasped by the fingers and resist the tendency of the hand to vibrate without interfering with the perfect freedom of movement of the shoe with relation to the burnishing tool.

Cross-int. 13. What do find in the part marked G in Carey
23*a* patent of 1872 that precludes its use as a finger support? If you think it cannot be so used, please give your reasons why it cannot.

Ans. I find nothing which precludes its use as a finger support, [but it is not the Helms finger support for the reason that it is a gauge for the sole and determines the position of the sole with relation to the burnishing tool and does not afford perfect freedom of movement of the shoe while holding the operator's hand to resist the vibrating movement.]

(All the foregoing answer included in brackets objected to as being unwarranted in view of the question, and as assuming that the Helms finger hook did not in his machine serve as a rest for the face of the sole, which question has not yet been broached.)

Cross-int. 14. Please refer to complainant's patent and state whether, in your opinion, in view of the state of the art at the date thereof, there was anything new or peculiar in his tool therein shown which operates by a vibrating action upon the edge of the sole. If you think there was, please explain in what it consists.

Ans. I am of the opinion that there was nothing new in the tool itself.

Cross-int. 15. Please state whether or not you think his method of mounting the same so that it had a receding or yielding movement in the direction of its length and exerted an elastic pressure was original with him or not.

Ans. To the best of my recollection, it was.

Cross-int. 16. Have you ever seen a machine like that shown in complainant's patent, in operation?

Ans. I have. In the machine I saw in operation there was some difference in the mechanism which produced the vibrating movement, but the organization and operation of the machine was the same as that of the Helms patent.

Cross-int. 17. Was the vibrating movement of the tool in the

machine referred to in the preceding answer the same as in the Helms patent?

Ans. I saw no substantial or material difference. In the patent the tool moves in an absolutely straight path, and in the machine its movement is, mathematically speaking, in the arc of a circle, but the arc is so short in proportion to the radius that the
24 movement of the tool does not differ, appreciably, from a rectilinear movement and is practically the same.

Cross-int. 18. Now please answer cross-interrogatory 16, and state whether or not you have ever seen in operation a machine like that in complainant's patent.

Ans. I consider that I have. If the term "like" is intended to mean exactly identical in every part or detail of mechanism, I have not.

Cross-int. 19. Do you deem cross-interrogatory 16 such a question as cannot be properly answered directly in the negative or affirmative? If you do, please give your reasons why it cannot be properly answered in the negative or affirmative.

Ans. I think it cannot be answered with absolute precision in the negative or affirmative for the reason that the term "like" is somewhat indefinite. If the term "like" is taken to mean the same in all substantial parts, then I should say that the machine I saw was like that of the Helms patent. If it means alike throughout, including the minor details of the machine, the machine I saw is not like the Helms patent. I consider that the machine I saw was the same in substance as the Helms patent. I cannot answer cross-interrogatory 16 any differently.

Cross-int. 20. Do you think the Helms machine shown in his patent would be a practical working machine for the purpose intended?

Ans. I do.

Cross-int. 21. Do you think, if made as there shown, with the length of the tool-carrier B in proportion to the other parts, it would be practical to have that tool-carrier pivoted and move in the arc of a circle as you have described?

Ans. I think that the proportion would probably have to be changed if the mechanical expedient of moving the tool-carrier on a pivot were resorted to in place of sliding it in a guide.

Cross-int. 22. In those machines which you have referred to as having seen, and which you say were partly like and partly unlike the machine shown in the Helms patent, did or not the tool-carrier extend in front of the driving arbor, as in the Helms patent? And did it or not extend to the rear as far as the arbor, or practically so?

25 Ans. It did extend to the front of the arbor, and also to the rear about as far as the rear end of the arbor.

Cross-int. 23. And is that machine the nearest approach in construction to the Helms patent that you have ever seen?

Ans. It is as near as any that I have ever seen in actual operation.

Cross-int. 24. Please examine the English patent now shown you, No. 879 of 1868, issued to Pierre Francois Gubault, and state whether

or not you find therein burnishing tools adapted to burnish the sole edges of boots and shoes, the same having chambers for heating by steam and being connected with devices adapted to impart to them a reciprocating motion in a right line, and provided with a rest for the face of the sole when being burnished. In answering, please state the elements in such behalf which you do or do not find in the specification and drawings.

Ans. I have examined that patent and find burnishing tools for sole edges described as being heated by gas or candle or other means, and mechanism for imparting a vibrating movement to the tools, and what I take to be a rest or support which receives the face of the sole when being presented to the tools, although I do not find its construction or operation described.

(Noon recess.)

Cross-int. 25. Please examine the specification and drawings in English patent No. 59, granted to A. C. Andrews January 5, 1874, and state whether or not you find therein burnishing tools with mechanical devices adapted to reciprocate the same; and, if yea, please state what, if any, differences you find between the burnishing tools there shown and that shown in complainant's patent.

Ans. I find burnishing tools and mechanism for vibrating them. The only difference that I notice between the tools of Andrews and Helms is that the part which acts on the rand is a roller in the Andrews tool, but is a lip forming an integral part of the tool in the Helms apparatus.

Cross-int. 26. Please examine the Andrews tool more closely, and the specification in so far as it relates to it, and state if it does not act upon the face of the sole, the edge thereof, and the rand the same as the Helms tool, but has in addition thereto a rotary impression wheel which leaves an imprint on the sole.

26 Ans. The specification states that besides the guide wheel (which acts on the rand) the tool may carry an independent serrated wheel for marking the imitation ordinarily impressed on the crease of the welt, and one of the figures of the drawing shows a tool with such a roller. I notice also that the tool in the Andrews patent is fixed in the lever which carries it, while the Helms tool swivels in the carrier, thus enabling it — follow the curves of the sole edge, which is a very important advantage in the operation of burnishing.

Cross-int. 27. Please state whether or not you find in Andrews's drawings burnishing tools arranged to reciprocate in the arc of a circle, and whether he also intelligibly describes in his specification a method of using his machine in which the burnisher would reciprocate in a right line as in the Helms patent.

Ans. I do find tools arranged to reciprocate in an arc, and also an intelligible description of means for reciprocating the tool in a straight line.

Cross-int. 28. Please examine the Andrews patent, more especially figures 3, 4, and 5, and state whether or not the burnishing tool there shown does not have a rand lip which is formed as part of the bur-

nishing tool, while the small wheel 7 is evidently pivoted, and must be so in order to make the impression described.

Ans. I don't, from the drawings and description, understand the tool as having a lip which is formed as a part of the tool. The specification speaks of the guide wheel which enters between the sole or heel and upper. The wheel 7 is evidently pivoted.

Cross-int. 29. According to the well-known rules of drawing, could the tool be made as shown in Fig. 4 without the rand lip inside the rotary impression wheel 7 being made a part of the burnishing tool itself.

Ans. The drawing, Fig. 4, looks as if there were a rand lip formed as a part of the tool, but it also appears as if the beveled part between the knurl of wheel 7 and the bed of the tool were a part of that wheel, and taking the three figures, 3, 4, and 5, together as representing three different views of the same thing, I should not understand that they were intended to represent a lip forming part of the tool.

Cross-int. 30. In answer to cross-interrogatory 26, you state that "the tool in the Andrews patent is fixed in the lever which carries it, while the Helms tool swivels in the carrier, thus enabling it to follow the curve of the sole edge, which is a very important
27 advantage in the operation of burnishing." Please state what you find in the Helms patent which warrants this conclusion in relation to its burnishing tool, and, further, what your reasons are for believing that the Andrews tool is "fixed in the lever which carries it."

Ans. I find in the Helms patent the tool shown with a round (cylindrical) shank which enters the socket, which warrants the statement that it swivels or turns readily. My reason for believing that the Andrews tool is fixed is the distinct statement to that effect in the Andrews specification, coupled with the fact that the shank or stem of the tool is shown as having a flat seat for the screw which fastens it to the lever.

Cross-int. 31. In your last answer you speak of "a cylindrical shank which enters the socket." Do — mean the shank of the part marked C which enters the part marked B, or what is it?

Ans. I mean the part marked B in figures 3 and 4.

Cross-int. 32. In your answer to cross-interrogatory 30 you spoke of the tool of the Andrews patent having a flat seat, so as not to swivel. Are you not aware that a tool thus formed constituted the feature in the well-known Ingalls patent, and that in the Exhibit Keith Machine the tool has such a seat and yet swivels?

Ans. The drawing in the Ingalls patent does not show clearly whether the tool swivels or not, and the specification states that it is "held in its socket by any proper means." I am aware that the tool in the Exhibit Keith Machine has a seat in its shank, but this is engaged by a spring which yields, to give the requisite swiveling movement, while in the Andrews machine the tool shank is engaged by a rigid screw, as shown in figure 7, which prevents such swiveling movement in the lever, and the lever can have no swinging movement about an axis at right angles to that to which it is piv-

oted, so that it does not have the important advantage of the Helms and Keith machines.

Cross-int. 33. Do you consider the swiveling movement of the tool in the Helms patent to be any part of his invention?

Ans. I do not consider this movement in itself to be a part of Helms' invention.

Cross-int. 34. If, as you state, you consider it to be no part of Helms's invention, please explain why, in answer to cross-int.
28 26, you introduced it as contradistinguishing his machine from that of Andrews.

Ans. I was not aware that I did so introduce it. Cross-int. 25 inquired what differences I observed between the Andrews and Helms tools, and cross-int. 26 was an apparent continuation of that question, because I had not pointed out the differences with sufficient minuteness; and consequently I pointed out this difference in my answer, without, however, making any statement as to whether or not it was of Helms's invention.

Cross-int. 35. Are you familiar with the contents of the Patent Office file wrapper of the Helms patent as printed in the record in the case No. 1758, in which this complainant was the then complainant and B. F. Spinney *et al.* defendants?

Ans. Yes; I am.

Cross-int. 36. Judging by the record as it stood at the date of his filing his application for that patent, what should you judge to have been the subject-matter of his invention as he then understood it?

Ans. An edge-setting machine having a power-driven vibrating burnishing tool, with a guard and a finger rest to steady the workman's hands while pressing the edge of the sole against the vibrating tool; also in making the tool of such a machine yielding, or so as to give an elastic pressure, and also in the devices for producing the vibrating movement of the tool.

Cross-int. 37. Do you regard the elements named in your last preceding answer as the elements of which Helms believed himself to be the original and first inventor, and for which he was seeking protection under the patent law? If yes, please point out what you find in the contents of the file wrapper to warrant such a conclusion.

(Objected to as a question of law.)

Ans. I do so regard them, and I base my view on the entire specification in connection with the drawing which I understand to show and describe the inventions mentioned in my last answer.

Cross-int. 38. Are you aware that Helms disclaimed the invention of any part of his machine except the finger rest, and that he distinctly stated that the other parts were old?

Ans. I am not.

29 Cross-int. 39. Please read that portion of the original specification which immediately precedes the claims and see whether you draw such inference from that or not.

Ans. I do not.

Cross-int. 40. Do you think the following language does not admit

all the parts of the machine except the finger rest D to be old? "The finger rest D is the main feature of my invention, all the other parts of my machines relating to new combinations of old elements." (Quoted from page 198 of the record in suit Union Edge Setter Co. *v.* Spinney *et al.*)

Ans. I do understand this language as an admission that the separate elements or devices entering into the machine were old.

Cross-int. 41. Do you or not understand from said file wrapper and contents that in view of the Tayman patent Helms virtually admitted that a finger rest could not be broadly claimed in a machine like that of Helms?

Ans. I do not so understand it. I take it that he could not claim a finger rest by itself, but that in the Helms machine—that is, in the new organization invented by Helms of devices in existence before his invention—the finger rest could be claimed, as it performed a new function and operated in a new manner.

Cross-int. 42. Do you or not understand that he admitted that a finger rest in a burnishing machine was not new?

Ans. I do not.

Cross-int. 43. Did he or not originally present such a claim and subsequently erase it?

Ans. He did.

Cross-int 44. Did he at any subsequent time claim it except in combination with other devices?

Ans. No; he did not.

(Adjourned.)

SEPTEMBER 24, 1885.

Cross-int. 45. Is it not apparent to you from an inspection of the contents of the file wrapper of the complainants' patent shown in the record that the Patent Office allowed a claim which included the finger hook or rest only on condition that the applicant should show that his finger rest performed a function in his machine which it had not performed in preceding machines?

Ans. I understand it to be so, and from the subsequent allowance of the claim I understand that the Patent Office was convinced that the finger rest did perform a new function.

Cross-int. 46. Please state what, in your opinion, was the new function of the finger hook which, from the language of the amended specification, the examiner in charge of Helms' application was led to believe it performed in Helms' machine.

Ans. The function of enabling the operator to resist the to-and-fro vibration of the burnishing tool; the amendment stating in substance that the combination of the rest with the burnishing tool formed the main feature of the invention was apparently sufficient to enable the examiner to perceive that the finger rest did perform such new function.

Cross-int. 47. Your last preceding answer does not seem to be sufficiently definite. Do you mean in that answer to state that in your opinion any amendment made to the specification enabled the

examiner to more clearly understand that the finger hook "enabled the operator to resist the to-and-fro vibration of the burnishing tool."

Ans. I do not know that the amendment was what made the examiner understand the matter, but I infer that he did come to an understanding of it from the fact that after having called for an amendment on the ground that Tayman showed a finger rest, and that the new function of Helms' finger rest, if it had any, should be pointed out, the examiner waived his former objection and allowed the claims.

Cross-int. 48. Do you or not think that the original specification clearly pointed out the function of the finger rest in so far as related to steadying the hand of the operator when presenting the shoe to the burnishing tool where the specification states as follows: "The workman passes (presses) the edge up against the tool and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger rest D, especially when burnishing the corners of the toes."

Ans. I think that points out the function of the finger rest with sufficient clearness.

31 Cross-int. 49. Then if upon reference to the Tayman patent, which shows a finger hook, the office refused a patent unless, in the language of the Patent Office letter of January 11, 1876, "if the finger rest performs any new function in this instance, in combination with the tool and holder here used, it should be clearly stated," is it not clear to your mind that the office deemed that a new function of the finger hook was by the amendment of January 19, 1876, described or shown.

Ans. I do not see that this follows as a matter of necessity. I do not understand that the Patent Office is infallible, and I believe that objections are frequently made by the office and then withdrawn upon the examiner obtaining a new light or different understanding of the matter, whether such light is derived from a written amendment or not.

Cross-int. 50. In so far as the record shows, does it or not, in your opinion, appear therein that the force of the Tayman patent as a cited reference was obviated by an amendment which sought to describe to the office a function performed by the hook in the Helms invention which it did not perform in the Tayman invention?

Ans. In my opinion the record merely shows that between Jan. 11, 1876, and the date of allowance of the Helms application the office came to a new understanding of the case, and upon receiving a response to the action of January 11, 1876, in the amendment of January 19 the former objection was withdrawn. It is true that so far as the record shows the amendment of January 19 afforded the office an opportunity for waiving its former objection.

Cross-int. 51. Please point out what, in your opinion, were the essential features of the amendment of January 19 which, as you say, "afforded the office an opportunity for waiving its former objection."

Ans. It seems to me that the last paragraph before referred to by

me in answer to cross-int. 46 is the part most nearly touching on the subject of the finger rest. Whether this was the part that convinced the examiner that his former objection was unfounded, or he came to that conclusion upon a more careful study of the entire case, I have no means of knowing.

Cross-int. 52. What part or member of the machine shown
32 in complainant's patent do you regard as that which is referred to in the original specification and in the amendments as a "tool"?

Ans. The part marked C.

Cross-int. 53*a*. What, in your opinion, are the essential features or subdivisions of this tool marked C?

Ans. The bed or part which fits the edge of the sole, the rand lip which acts on the upper face of the sole near where the upper of the shoe joins it, the guard or rest for the face of the sole which lies over the under or tread part of the sole and assists in guiding the tool, and the shank or tang by which the tool is connected with the tool-carrier.

Cross-int. 53*b*. Do you think that in the specification and amendments where the word "tool" occurs it refers to the tool C as shown and as thus described by you?

Ans. It seems to me that the word "tool" refers rather to the burnishing part of what I have called the tool C—that is, the bed and lip—as the specification speaks of the rest for the face of the sole, which I understand as meaning what is technically called the "guard," as a separate element.

Cross-int. 54. Please state whether or not the lower and rear portion of the tool C, which you have designated as the guard or rest for the face of the sole, has not been for many years known to the trade under the technical name of "guard."

Ans. I believe it to be so, but I have no personal knowledge of the trade terms in use prior to the date of the Helms patent.

Cross-int. 55. Do you find anything in the original specification which speaks of or refers to the face of the sole?

Ans. I do not.

Cross-int. 56. Does not the original specification in referring to the part marked C refer to it generally as "the tool" in all cases where it alludes to it?

Ans. It does.

Cross-int. 57. In Helms's machine as shown in the side elevation and vertical section thereof and respectively numbered as figures 2 in the drawings of the patent, what surfaces do you find below the tool marked C therein?

Ans. The guard, finger rest, and a part of the frame-work
33 have surfaces below the burnishing part of the tool. The finger rest and a part of the frame-work have surfaces below the guard or rest which is immediately below the burnishing part of the tool.

Cross-int. 58. What part of the tool did you intend to designate as the burnishing part of the tool in your last preceding answer?

Ans. The part before referred to as the bed and rand lip.

Cross-int. 59. Please examine the tool now shown you and marked Defendants' Exhibit Hand Tool No. 5 in the suit of Union Edge Setter Co. *v.* B. F. Spinney *et al.* and state whether or not it is a hand-burnishing tool formed to burnish a well-known style of shoe edge.

Ans. I believe it to be one.

Cross-int. 60. Suppose this tool was inserted in the tool-holder in the Helms machine or in any burnishing machine to operate by vibration as in the Helms machine, please point out where, in your opinion, the burnishing part of the tool, as thus operating, would cease and the non-burnishing part would commence; or, in other words, what part would operate distinctively as a guard and what part as burnishing portion described.

Ans. In my opinion the burnishing part would cease at the shoulder between the concave part and the longer projection having a diagonal surface, which projection would, I take it, be the guard, and the remainder of the tool the burnishing part.

Cross-int. 61. Suppose the sole to be of sufficient thickness so that its edge would be acted upon by all portions of the molded surface of the hand tool No. 5 except the narrow face at the lower end of the longer projection of the tool, would or not, in that case, all parts of the tool thus in contact with the sole be a burnishing portion?

Ans. They would if they pressed upon it sufficiently to have any burnishing effect.

Cross-int. 62. If the tool were used as stated in the last preceding question, would there be any portion of the tool projecting below the burnishing projection?

Ans. No.

Cross-int. 63. In such case the words in the specification "and the face of the sole against the surface which projects below the tool" must mean some surface other than that of the tool itself, must it not?

34 Ans. I do not think so, for the reason that I do not understand such a tool to be referred to in the specification. If there were such a tool there would not, in my opinion, be any rest for the face of the sole or surface below the burnishing part of the tool against which the operator should press the shoe sole.

Cross-int 64. Do you, in your last preceding answer, mean that the specification intended to confine the patentee's invention to a tool specifically like that shown in his drawings, or do you think that his specification should be construed, if it can be, with a view to all well-known burnishing tools which are employed by the trade?

Ans. As I understand it, the specification calls for a tool like that shown in the drawings in so far as having a burnishing part and a guard or rest for the face of the sole, and I think that it should be construed as covering a burnishing machine having the general organization and plan of operation of the machine shown, using any tool known to the trade that has a burnishing part and a guard.

Cross-int. 65. Do you think the tool shown in the Helms patent is susceptible of use in burnishing round-edge soles?

Ans. Not the tool of the particular shape shown, but a tool the

same as shown, in that it has a burnishing part and a guard, and of course the burnishing part would be properly shaped to operate upon any part of the sole edge to be burnished.

Cross-int. 66. Suppose a burnishing tool were employed in the Helms machine in which the entire molded surface of the tool performed the act of burnishing, do you think there would then be a portion of the surface projecting below the burnishing part of the tool?

Ans. I do not; but there might be a tool the entire surface of which burnished, and yet the tool have a guard, as I understand it—that is, a part which lies over the face of the sole sufficiently far to form a guide for the burnisher. Such a part would, in my opinion, be the same as the part spoken of in the patent as "projecting below the burnishing part," although these words would not in this case accurately define the guard or guiding part.

(All the foregoing answer except the words "I do not" objected to as being suppositious, theoretical, argumentative, and not warranted by the question.

(Noon recess.)

35 Cross-int. 67. Please state whether or not you have such knowledge of the art of shoe manufacturing as to know whether or not, since a time previous to the date of complainant's patent, three well-known subdivisions of the styles of shoe-sole edges, to wit, square, round, and beveled, and with various modifications of each, have been common and well known. If so, state whether such be the fact or not.

Ans. I am not familiar with the various styles of sole edges prior to the date of the Helms patent.

Cross-int. 68. Please examine the illustrated list of Corthell Manufacturing Co.'s cutters (now put in evidence and marked Defendant's Exhibit Corthell Man'f'g Co.'s Circular, W. A. C., sp'l ex'r) and state whether you do or do not know whether sole edges are common and well known, having a cross-section as shown in the diagrams numbered in said circular from 1 to 39.

Ans. I have no doubt they are.

Cross-int. 69. Suppose that burnishing tools were made to correspond to sole edges molded to the outline shown at the upper part of diagrams 16 to 20, inclusive, and from 22 to 33, inclusive, in Exhibit Corthell Manufacturing Co.'s Circular, and that they were respectively employed to burnish edges of a thickness equal to their own, what, in such case, would constitute, in the language of complainant's patent, "the surface which projects below the tool"?

Ans. There would be nothing to which those words would exactly apply, but there is in each of the tools referred to a part which is the same in function as the guard or part referred to in the patent, namely, a part which rests on the face of the sole and guides the tool along the sole edge. In the tools referred to this part would also burnish, but it is, in my opinion, no less a guard because it does burnish. It seems to me that the parts of the burnishing tool are closely analogous to the tread and flange of a car wheel. If the

surface of the tread and flange are connected by a curve, as is frequently the case, it would be impossible to say exactly where the tread stopped and the flange begun, but there would be, none the less, a tread and a flange, just as in the tools referred to there is a burnishing part and a guard.

Cross-int. 70. You speak of "the face of the sole." To what part of the sole do you apply that term?

36 Ans. I mean the tread, or, generally speaking, the part which comes on the ground in walking. Here, just as in the case of the tools referred to in my last answer, it may, in some cases, where the sole edge is rounded, be impossible to draw the exact line where the edge stops and the face begins, as the one runs into the other.

Cross-int. 71. Please state whether, in your opinion, cutters corresponding to diagrams 22 to 33, respectively, in Defendant's Exhibit Corthell Manufacturing Co.'s Circular would be intended and adopted to trim the edge of the sole only or the edge and face of the sole in whole or in part.

Ans. This seems a mere matter of words. The facts are perfectly plain, namely, that they would cut into the edge, and in so doing would remove the portion of the under part of the piece of leather forming the sole, which part might be said to be taken off from the edge or off from the bottom or face of the sole with equal propriety.

Cross-int. 72. Please state whether you have ever known the portion of a sole which is molded by a trimming tool of some kind, and which is polished by a tool called a burnishing tool, to be designated by any term except the "edge," and whether the portion not operated upon by the trimming tool or burnishing tool is ever known to the trade by any name except the bottom or face of the sole.

Ans. I believe that the part acted upon by trimming or burnishing tools would generally be called the edge, and the part not so acted upon called the bottom or face; but I am by no means certain that there are not trimming and burnishing tools which would be said, in trade terms, to act on a part of the bottom of the sole. I am not very familiar with the trade terms, but am of the impression that a part of the sole on the under face near the edge, which is, in some cases, acted upon by the burnishing tools, would be called by the workman a part of the bottom rather than of the edge.

Cross-int. 73. Please examine diagrams 13 and 14 in Defendant's Exhibit Corthell Manufacturing Co.'s Circular and state whether in burnishing a sole edge of that form, and with a burnishing tool corresponding thereto, there would be, in the language of the patent, a surface which projects below the tool; and, if so, what would constitute such surface.

Ans. I do not think that there is any such surface on these tools.

37 Cross-int. 74. Please note the preceding question, and that it does not inquire whether there would be any such surface on the tool, but, generally, whether there would be any such surface

projecting below the tool; and if you think there would please state in what it consists.

Ans. I do not think that with such a tool there would be any surface which the patent refers to as projecting below the tool.

Cross-int. 75. Please note that you are not asked whether there is any surface such as the patent refers to projecting below the tool, but whether there is any surface projecting below the tool; and, if so, what is it.

Ans. The question was whether there would be, in the language of the patent, a surface, &c., and I naturally supposed it meant the surface referred to in the language of the patent. There are several surfaces shown in the patent below the tool. There is the finger rest and the base of the machine, both of which have surfaces projecting below the tool, but neither of which is, in my opinion, referred to by the language of the patent, which is just as applicable to the one as the other.

Cross-int. 76. Suppose a tool was used like those shown in diagrams 13 and 14, above inquired about, might not, in your opinion, the face of the sole rest against the finger hook D?

Ans. In my opinion it could not in the Helms machine, constructed and operated as I understand it to be from the specification and drawing.

Cross-int. 77. Suppose tools were used like said diagrams 13 and 14, do you think the base of the machine to which you have referred in answer to cross-interrogatory 75 would serve as a rest for the face of the sole?

Ans. I do not.

Cross-int. 78. Then it follows as a logical sequence, does it not, that when using Helms' machine with burnishing tools like diagrams 13 and 14 there would be no rest for the face of the sole as described in the patent?

Ans. It does.

Cross-int. 79. Please state in this connection whether you think the words added by amendment 1 of January 19, 1876, "and the face of the sole against the rest which is just below the bur-
38 nishing part of the tool," and the words in amendment 2 of the same date, "and the face of the sole against the surface which projects below the tool," described any function of the machine which was not described in the original specification.

Ans. I think they do. They appear to me to more fully describe the function of the guards of the tool, which was not described in the original specification.

Cross-int. 80. What new function do they describe, as stated in your last answer?

Ans. It describes, by implication at least, the function of receiving the face of the sole as the operator presents the edge of the shoe to the tool.

Cross-int. 81. Please explain more fully what you mean by "receiving the face of the sole" in your last answer.

Ans. The words added in amendment makes the patent read, in substance, a finger rest to aid the workman in holding the edge up

to the tool and the face of the sole against the rest, which is just below the burnishing part of the tool; and in another place that the workman presses the edge up against the tool and the face of the sole against the surface which projects below the tool. This rest or surface below the tool was not referred to in the original specification, and it seems to me that the amendment calls attention to its function of receiving the face of the sole or, in other words, having the face of the sole held up to or pressed against it.

Cross-int. 82. If, as you have already stated, there would — no rest for the face of the tool when burnishing tools like those shown in figures 13 and 14 of the circular inquired about were employed and there would be a rest for the face of the sole when a tool was employed like that shown in the Helms patent, and the new function referred to in the amendment of January 19, 1876, related to such rest for the face of the sole, would it not follow that such function would be absent when one kind of tool was employed and present when another kind was employed?

Ans. It would.

Cross-int. 83. Now, please note that in the original specification Helms' first claim was as follows: "In a burnishing machine, the finger rest D constructed and operated substantially as described;" that by office action of December 13, 1875, this claim was re-
39 jected on reference to Tayman's patent; that by amendment of January 5, 1875 (1876), the following claim was filed as a substitute for the original claim, which was thereby erased: "In combination with the burnishing tool and the rest for the face of the sole, the finger rest D, substantially as described;" that by office action of January 11, 1876, the following notice or request appears: "And if the finger rest performs any new function in this instance in combination with the tool-holder here used it should be clearly stated," and that in response to this request the amendments of January 19, 1876, were made. Now please state whether, in your opinion, in view of these facts and the request of the examiner of January 11, 1876, in which the new function of the finger rest, if any, was required to be stated, the word "rest" where it occurs in amendment 1 and the word "surface" where it occurs in amendment 2 more logically and naturally refer to the finger rest than to any other part of the machine.

Ans. From these facts alone it might appear that the words refer to the finger rest, and it is possible that the examiner considered that they did refer to the finger rest, but taking the specification as a whole I am of the opinion that the applicant did not, in using these words, refer to the finger rest, and upon a careful reading of the specification and amendments I do not understand these words as referring to the finger rest, but do understand them to refer to the guard of the burnishing tool.

Cross-int. 84. Please state whether you find in the original specification any reference to a guard on the burnishing tool or any reference to that tool except as "the tool" and marked C.

Ans. I do not.

Cross-int. 85. Do you find in the amendment any reference to

the guard except, as you have already supposed, they might refer to it?

Ans. The words "against the rest which is just below the burnishing part of the tool" seem to me can refer to nothing except the guard, although they do not include that technical name for that part of the tool.

Cross-int. 86. Your last answer is entirely irresponsive. Please state whether you find anything in the amendments except the reference to a surface or rest below the tool which you have supposed might be a part of the tool.

40 Ans. I do find the words quoted in my last answer.

Cross-int. 87. Are not the quoted words in your answer to cross-interrogatory 85 the words excepted in that interrogatory?

Ans. I find nothing in the amendments which I suppose refer to that part of the tool except those quoted by me and the following words: "The surface which projects below the tool," and the words "the rest for the face of the sole."

Cross-int. 88. Why do you conclude that these words refer to the tool rather than to the finger hook when they were inserted by the applicant's solicitor in response to a request for an explanation of the new functions of the hook, if any it had, in Helms's machine?

Ans. Because, in the ordinary interpretation of language, the words "which is just below the burnishing part of the tool" appear to me to refer to the part which is just below the burnishing *the* part, namely, the guard, and also because from an inspection of the drawings it is evident to me that it was never intended in the operation of the machine to have the face of the sole pressed against the finger rest, and it is equally evident that it was intended that the face of the sole should be brought against the guard of the tool in presenting the edge to the tool. The amendment may or may not have been responsive to the previous office letter. As I understand it, it is not responsive. The examiner may have considered it responsive and supposed that the words referred to the finger rest, or he may have understood it as referring to the guard and yet waived his previous objection from a better understanding of the case.

(Adjourned.)

BOSTON, *Sept.* 28, 1885.

Cross-int. 89. Do you not think your last answer somewhat garbles the record in the file wrapper, in this, that you quote from clause 1 of the amendment of January 19, 1876, in which occur the words quoted by you, to wit, "just below the burnishing part of the tool," while in clause 2, which you do not quote or construe, occur the words "the workman presses the edge up against the tool and the face of the sole against the surface which projects below the tool?" In considering this question please bear in mind that in the description of the tool (C) in the specification it is referred to generally as the "tool," and that if a surface projects below the tool, as stated in said clause 2, it does not exclude any part of the tool from being above said surface.

41

Ans. I did not intend to garble the record. I think that the words of clause 2, taken by themselves, are somewhat ambiguous, while those in clause 1 seem to me perfectly definite and certain, and it was from these that I concluded that the surface referred to was the guard and not the finger rest. I also drew my conclusion from the drawing and from my understanding of the way the machine operates, so that my answer to cross-interrogatory 88 was exactly true.

Cross-int. 90. From your past knowledge of the art of burnishing shoe-sole edges by the use of vibrating tools are you able to point out any new function performed by that part of tool C which you term the guard when used in the Helms machine which it has not always performed in connection with the vibrating tool, however operated? If yea, please specify such new function.

Ans. I am not. I think it performs the same function in the Helms machine that it always performed in vibrating burnishing tools having such a guard.

Cross-int. 91. Then you do not think, in view of the fact that the guard performs no new function and in view of the fact, as I understand you, that no new function of the hook was pointed out in the amendment of January 19, 1876, that the patentee's solicitor in the said amendment of January 19 pointed out any new function of any part of the machine? Is this so or not?

Ans. I do not think that a new function was pointed out, but I do think that the function of the guard which had not been previously pointed out or referred to in the specification was referred to in the amendment of January 19.

Cross-int. 92. How do you think the pointing out of an old function of the guard of the burnishing tool could have been deemed and taken by the Patent Office as the pointing out of a new function, or do you think the language of the amendment of January 19 was so ingeniously worded as to convey to the mind of the examiner the idea that it was the description of a new function when it was describing an old one?

Ans. I think it possible that the examiner may have thought that a new function was described, but I do not think that
42 the novelty and utility of the Helms machine consisted in a new function of the burnishing tool or its parts taken by itself, but in the new organization and co-operation of all the parts, mainly of the vibrating burnishing tool and its guard and the finger rest, and it seems to me that the most plausible explanation of the examiner's action was that he finally recognized the novelty and utility of the machine and the fact that the function of the finger rest was sufficiently described in the original specification, and consequently allowed the case without repeating his previous requirement.

Cross-int. 93. Is it not plain to you, from an examination of the record, that in the office letter of January 11, 1876, the Patent Office declined to allow a claim to Helms for the "combination with the burnishing tool, the rest for the face of the sole, and the finger rest D," as claimed in the amendment of January 5, 1876, unless it could

be shown, as stated in said office letter of January 11, that the finger rest performed some new function in the Helms machine.

Ans. It is. That was evidently the examiner's view at the time of writing that letter.

Cross-int. 94. And is it not also apparent that Helms's solicitor assumed to comply with such requirement?

Ans. It is not evident to me that he did.

Cross-int. 95. Do you find any objection to the ruling of the examiner in such behalf or any pretence by Helms's solicitor that he was entitled to a patent without complying with the requirement in office letter of January 11, 1876?

Ans. I find nothing of that nature in the printed record.

Cross-int 96. Does not a part of the front face of the finger hook form a line nearly coincident with the inside or operative face of the guard of the burnishing tool in the Helms machine, as shown in the drawings of his patent?

Ans. I have carefully examined the photo copy of the drawing as to this point and find that the line of the inner face of the guard prolonged would pass at some distance from the front face of the finger rest—a distance about as great as that between the finger rest and part of the tool above the guard. This distance is so great that, to my mind, it wholly precludes the resting of the sole against the finger rest while being operated upon by the tool. If the
43 face of the sole touched the finger rest and the edge of the shoe fitted any considerable portion of the bed of the tool the point of the guard would dig into the face of the sole.

Cross-int. 97. Do you not find in the drawings means shown for adjusting the finger hook so that it will bear against the burnishing tool?

Ans. The finger hook has a shank fastened in the frame-work by a set-screw, and I see no reason why it might not be set forward until it touched the tool, except that if so set it would prevent the tool from swiveling freely and thus greatly impair the efficiency of the machine.

Cross-int. 98. If the finger hook was advanced to the burnishing tool would not its front face be in advance of the prolongation of the line of the operative face of the guard?

Ans. I think it would slightly.

Cross-int. 99. Now, assuming the "tool" to be what it is stated in the patent, namely, the part marked C, would not the front face of the finger hook constitute such a surface as is referred to in the patent as "the surface which projects below the tool"?

Ans. The front face of the finger hook would be a surface to which those words would apply, but I feel positive that it is not the surface meant by the applicant.

Cross-int. 100. In your opinion would that part of the Helms machine marked C, and which is referred to in the patent as the "tool" be anything but an ordinary well-known burnishing tool when not used in the Helms machine?

Ans. It would not.

Cross-int. 101. Would the part marked C in the Helms patent be

anything else or perform any other kind of duty when used in other machines—for instance, such machines as described in the Ingalls patent, Gubault patent, and Andrews patent?

Ans. I do not see that it would.

Cross-int. 102. If the finger hook were removed from the Helms machine would you still have a burnishing tool and also a rest for the face of the sole?

Ans. In my opinion there would.

Cross-int. 103. Any more so than when the burnishing tool C was used by hand?

44 Ans. No.

Cross-int. 104. Does or does not the Andrews machine shown in his patent show a tool having the essential form and capable of performing the function of that marked C in the Helms patent?

Ans. It does.

Cross-int. 105. Please read from the specification in Helms' patent the precise words, and point out on the drawings the letters or other marks which in your opinion indicate beyond a reasonable doubt that the part of the tool C next the finger hook (which has long been a well-known feature in burnishing tools) is the thing referred to in the patent as the rest for the face of the sole.

Ans. The following words in the specification: "and a finger rest to aid the workman in holding the edge up to the tool and the face of the sole against the rest, which is just below the burnishing part of the tool;" also "the workman passes (presses) the edge up against the tool and the face of the sole against the surface which projects below the tool, and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger rest D, especially when burnishing the corners of the toes;" also claim 1, "In combination with the burnishing tool and the rest for the face of the sole, the finger rest D, substantially as described." The part called the rest for the face of the sole is not separately lettered in the drawing, but the above words, in connection with the relative position of the parts shown in the drawing, leave me in no doubt that the part of the tool C next the finger hook, technically called the guard, is the thing referred to in the patent as "the rest for the face of the sole."

Cross-int. 106. Suppose you were to change the construction of the words "the rest for the face of the sole" so as to mean the front part of the finger hook D, would not the quoted language in your last preceding answer apply equally well thereto, and would there be any ambiguity in the patent if such change of construction were made? If your answer be adverse to the first proposition stated in the question, please give your reasons for your opinion, and if you answer affirmative to the latter proposition of the question, please give your reasons also therefor.

Ans. I do not think that in the clause first quoted the term "rest" would apply equally well to the finger rest, for the reason

45 that the language implies that the rest is a part of the burnishing tool, and states positively that it is just below the burnishing part. This language, it seems to me, can only mean the

guard. The claim also speaks of the tool, the rest, and the finger rest as three distinct parts; and it seems to me far more in accordance with the entire specification and drawing to construe the term "burnishing tool" as meaning the burnishing part of the tool, and "the rest for the face of the sole" as the guard, namely, a distinct part from the burnishing part of the tool, than to construe the term "rest for the face of the sole" as meaning the surface of the finger hook and a distinct part from the finger hook. I find no place in the specification where the part D is referred to by any other name except the compound word "finger-rest;" and from these considerations it seems to me clear that the term "rest for the face of the sole," in claim 1, means the part referred to in the specification as "the rest which is just below the burnishing part of the tool" and "the surface which projects below the tool," namely, the guard.

Cross-int. 107. Suppose a burnishing tool were employed in Helms's patent, which had a rand lip, a bed, and a guard, and that each of these three subdivisions of the tool equally burnished the sole—that is, each as distinctly burnished the sole as the others—what part of the machine in such case would constitute the rest which is just below the burnishing part of the tool?

Ans. If such a tool were used in the Helms machine, the guard would still constitute the part which is described in the Helms patent as "just below the burnishing part of the tool," although those words would not properly describe the tool then used; I mean that the guard would perform the same function as the guard shown in the Helms patent, and would be a rest for the face of the sole just as in the Helms patent, although it could not be properly described or distinguished from the remainder of the tool by the words "which is just below the burnishing part of the tool," as it can be in the case of the tool shown in the Helms patent as illustrated in this part of his machine.

Cross-int. 108. Suppose a burnishing tool were employed in the Helms machine which had a rand lip, a bed, and a guard, and that each of these three subdivisions of the tool equally burnished the sole—that is, each as distinctly burnished the sole as the others—what part of the machine in such case would constitute, in the
46 language of the patent, "the surface which projects below the tool"? In answering this question please avoid, as in your previous answer, a lengthened argument or reasoning to sustain your conclusions, and simply point out what part you so find, if any.

Ans. I think that the guard would constitute what is referred to in the language of the patent as "the surface which projects below the tool." I do not think that there is any other surface to which those words refer.

Cross-int. 109. Could not the words "the surface which projects below the tool" refer to the face of the finger hook?

Ans. As mere words they could, and they could equally well refer to any other projecting surface below the tool.

Cross-int. 110. Is not the front of the finger hook a surface, in the ordinary acceptation of that term?

Ans. It is.

Cross-int. 111. And does it not project below the tool C in the same sense that the guard of the tool projects below the bed—that is, do not both project downwards?

Ans. They do.

Cross-int. 112. If the tool C in the Helms patent is referred to therein as the "tool," and the finger rest is a surface projecting below the tool, do you not think it is a distortion of language to say that in construing the words "the surface which projects below the tool" should be construed as a part of the tool itself, when there is another surface which projects below all parts of the tool?

Ans. If these were the only words referring to this part, I should suppose that the finger rest, rather than the guard, was meant; but, taking the specification as a whole, I think that these words refer to the same part that is called in one place "the rest which is just below the burnishing part of the tool," and, in the claim, as "the rest for the face of the sole," by which, in my opinion, the guard of the tool is meant, for the reasons previously explained by me.

(Noon recess.)

Cross-int. 113. Please examine the tool now shown you, marked Defendant's Exhibit 6, Burnishing Tool, and state whether or not, in your opinion, it embodies or possesses a rand lip, a bed, and a guard.

47 Ans. It has.

Cross-int. 114. Please examine the boot now shown you, marked Defendant's Exhibit 6, Burnished Edge, and state whether or not, in burnishing a sole having the finish shown in the exhibit, the guard does not perform its part of the burnishing as actually as do the other parts of the tool.

Ans. It does.

Cross-int. 115. In such case there would be no surface projecting below the tool, as stated in the specification, except the face of the finger hook, would there?

Ans. There would be other surfaces projecting below the tool. The surface referred to in the specification would, in my opinion, be the inner face of the guard, and, so far as its function as a guard is concerned, I do not see that it makes any difference whether it also burnishes or not.

(All the question objected to after the word "tool.")

Cross-int. 116. Please state what surface you refer to in the preceding answer as projecting below the tool.

Ans. The surface of the base or frame-work of the machine and its pedestal.

Cross-int. 117. Is that the only surface you find that projects below the tool?

Ans. I meant to include the finger rest, which also has a surface below the tool.

Cross-int. 118. When a burnishing tool like Defendant's Exhibit 6, Burnishing Tool is employed in the Helms machine, and, as stated by you in answer to cross-int. 114, the rand lip, bed, and guard all

burnish, what surface is there "just below the burnishing part of the tool" against which the operator can hold "the face of the sole," as stated in the letter of January 19, 1876, to the Patent Office, unless it be the face of the finger rest?

Ans. The surface against which the operator presses the face of the sole is the inner face of the guard. It is not, accurately speaking, below the burnishing part of the tool, because it does burnish. The operator cannot, in the regular working of the machine, press the face of the sole against the finger rest, for the reason that the bed of the tool determines the position in which the shoe
48 must be held, and the face of the sole will not always project the same distance inward from the tool while different parts of the edge are being burnished; so that, if it were attempted to hold the face of the sole against the finger rest, the tool would not always fit the sole edge; and, on the other hand, if the shoe were properly held for the tool to fit or bear on the entire width of the sole edge, the face of the sole would be sometimes nearer and at other times more remote from the finger rest below the tool.

(The entire answer objected to as being not responsive, argumentative, and evasive.)

Cross-int. 119. When all parts of the burnishing tool—that is, the rand lip, bed, and guard—aid in the act of burnishing—that is, when each burnishes a part of the sole—is there any surface that is either below the tool or the burnishing part of the tool against which the face of the sole can be pressed, in a machine like that shown in the Helms patent, except the face of the finger rest? Please answer this explicitly and definitely, yes or no, or as brief as you can.

Ans. There is no such surface except that of the finger rest, and in the practical operation of the machine the face of the sole cannot be pressed against that.

(All the answer after the word "finger rest" objected to as unwarranted by the question, and the answer is complete and entire when terminating at that word.)

Cross-int. 120. If, in your opinion, as you have already testified, the finger hook or rest D in Helms' machine serves only as a finger hook and not as a rest for the face of the sole, and the burnishing tool C is but a burnishing tool, and would perform the same functions out of the machine as in, and perform only the same function in the Helms machine as it does in other burnishing machines, what do you find in the Helms invention that is not embodied in his second and third claims?

Ans. I find the combination of the finger hook with the burnishing tool having a guard, and means for vibrating the tool, or, in other words, an organized machine for burnishing sole edges, comprising a power-driven burnishing tool with a guard, enabling it to co-operate properly with the sole edge of the shoe held in the hands of the operator, and a finger rest which enables the operator, while holding the shoe, to resist the vibrating movement of the tool.

49 Cross-int. 121. In view of your previous statement that, at the date of the Helms invention, rotating and vibrating burnishing tools were known and well-known equivalents of each other, do you deem it any part of Helms' invention that he combined a finger hook with a vibrating instead of a rotary tool?

Ans. I do.

Cross-int. 122. Please point out in complainant's patent anything which attempts to establish the theory that his invention was contradistinguished from others because his tool vibrated instead of rotated.

Ans. I find nothing which appears to attempt to draw such a distinction.

Cross-int. 123. Helms's first claim in his original specification was for the finger rest, and was rejected upon reference to Tayman and others, Tayman's being a rotary machine having a finger rest. Is this so or not?

Ans. I understand it so.

Cross-int. 124. Helms acquiesced therein by erasing the first claim and filing a new claim which combined the burnishing tool, the rest for the face of the sole, and the finger rest D, did he not?

Ans. He did.

Cross-int. 125. Thereupon the office called attention to the fact that the finger rest was "stated to be the main feature of the alleged invention;" that "a rest for the same purpose is shown in the Tayman patent, and the other elements claimed in the combination are shown to be old separately, and if the finger rest performs any new function in this instance, in combination with the tool and holder here shown, it should be clearly stated." The office further stated that "it is not understood what is meant by the words in the first claim now presented, namely, the rest for the face of the sole. Additional amendment is therefore necessary before the case can be further considered." Do the quotations and statements in this question properly state in substance the office action next after the first amendment by Helms or his attorney?

Ans. They appear to me to do so.

Cross-int. 126. Please state whether you find anything in the record which indicates anything other than an entire acquiescence by Helms's solicitor in the rulings of the office quoted in the preceding question.

50 Ans. I do not.

Cross-int. 127. And the amendment of January 19, 1876, was drawn and filed in response to a requirement of the office that if the finger rest performs any new function in this instance—that is, in the Helms machine—in combination with the tool and holder there used, it should be distinctly stated. Is this so or not?

Ans. It was filed in answer to the letter containing that requirement.

Cross-int. 128. Have you ever seen a machine made like Helms's in operation, or any machine having a finger rest which could be advanced so that its front face would be on the line of the prolongation of the operative face of the guard?

Ans. I have seen machines like Helms's in operation, and the finger rest was held in the machine by a set-screw, so that it could probably be adjusted forward as far as the line of the guard of the burnisher; but it was held at some distance in the rear of that line.

Cross-int. 129. Have you ever attempted, or seen others attempt, to burnish a sole edge on any such machine, with the face of the sole resting against the front edge of the finger hook?

Ans. I have not.

Cross-int. 130. Then the opinion that you have expressed in divers of your answers, that a sole edge cannot be burnished when the face of the sole rests against the face of the finger hook, has no other foundation than theory, has it.

Ans. It is based on my knowledge of mechanism rather than on actual test.

Cross-int. 131. If you have never seen the attempt made, what knowledge have you of its feasibility, or what basis for an opinion except theory?

Ans. I formed my judgment of this matter just as I would of any other mechanical question. I believe it is possible to determine whether a machine will operate or not, and how it will operate, from the working drawing, without seeing the machine in actual operation. This may be a theoretical method of determining, but I do not so understand it.

Cross-int. 132. Assuming that a burnishing tool had an operative face like diagrams 12, 13, 14, and 15 of Defendant's Exhibit
51 Corthell Manufacturing Co.'s Circular, where no guard is shown upon the tool, and assuming such a tool to be in use in the Helms machine, where, then, would be the invention, or would there be any?

Ans. In my opinion, there would be none.

Cross-int. 133. Then in such case would the machine as organized and operating, in your opinion, embody the subject matter of Helms's first claim?

Ans. In my opinion, it would not.

Cross-int. 134. Then, assuming that the burnishing tool shown in the Helms patent and burnishing tools like those shown in Exhibit Corthell Manufacturing Co.'s Circular, diagrams 12, 13, 14, and 15, were also old and well known, it would follow that Helms's first claim would be infringed when one kind or form of old and well-known tool was employed in his machine, but would not be infringed when another or different old and well-known tool was so employed. Is this so or not?

Ans. I understand it to be so.

Cross-int. 135. Please examine the Complainant's Exhibit Keith Machine, and state what you find therein, if anything, except a finger hook and a burnishing tool, which constitutes any essential element in either of the claims in complainant's patent.

Ans. The burnishing tool has a guard, and the machine has all the elements of the Helms first claim arranged and operating substantially as in the Helms machine.

Cross-int. 136. What do you mean by the tool having a guard—anything different from what Helms shows?

Ans. I mean that it has a burnishing part and a part that lies over the face of the sole just the same as what Helms shows.

Cross-int. 137. Now please reconsider cross-interrogatory 135, and note that it does not ask or assume that there is any difference between the burnishing tool shown in the Keith machine and that shown in Helms's patent; but, on the contrary, the question, impliedly at least, assumes that the burnishing tools in the two machines are alike; and then state what you find, if anything, in the Keith machine, except a finger rest and a burnishing tool, which constitutes either of the essential elements in complainant's patent.

Ans. I find no other device or element than the burnishing
52 tool, with its guard and the finger rest, which constitutes an essential element of the Helms patent.

(Adjourned.)

BOSTON, *Sept.* 29, 1885.

Redirect examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 138. Please refer to your eighth, ninth, tenth, twelfth, and thirteenth answers, and compare more fully the parts in Thompson and Carey which may be used to steady the fingers with the finger rest of the Helms machine.

Ans. The vital difference between the Helms finger rest and the gauges in the Thompson and Carey patents is that in the Thompson and Carey patents the face or tread of the sole must be held against the gauges, while in the practical operation of the Helms machine the face of the sole cannot be held against the finger rest. The gauges in Thompson and Carey prevent the lateral movement or displacement of the sole edge with relation to the burnishing surface, the office performed by the guard of the tool in the Helms machine. If the guard were removed from the Helms tool, and the upper part of the Helms finger rest carried forward and fitted over the bed of the tool and made adjustable, so as to vary the distance between the rand lip and this part of the finger rest, it would be more nearly like the Thompson and Carey gauges, although the machine so organized would still contain a portion of Helms's novelty, in having a finger rest which would enable the operator to resist the vibrating movement of the tool; but such change would, in my judgment, destroy the value of the Helms machine.

Int. 139. Please refer to your eighty-second cross-interrogatory, and state what the practical value of the machine there described would be, and what part, if any, of Helms's novelty is in it.

(Objected to, as it appears from witness's own testimony in this case that he has never qualified himself to testify in the matter inquired about by practical experiments with the Helms machine, or any other, in burnishing sole edges when resting the face of the sole against the front of the finger hook.)

53 Ans. If the Helms machine were used with a tool like that shown in figures 13 and 14 of the Corthell Manufacturing Co.'s circular—that is, having a rand lip and bed, but no guard—the machine would, in my judgment, have but little, if any, practical value, owing to the extreme care that would be required on the part of the operator to retain the sole edge in proper place with relation to the tool and the great danger of the tool running off, so that the rand lip would either cut across the sole edge or strike and deface the upper. A machine so organized would, in my judgment, contain much of Helms's novelty, because it would have a power-driven vibrating burnishing tool in proper position for the workman to present the sole edge in the most effective manner, at the same time watching the action of the tool upon it, and a finger rest which would enable him to resist the vibrating movement of the tool; but the efficiency of Helms's machine would be lost because of the care and expenditure of time that would be required on the part of the operator.

Int. 140. Please refer to your 90th, 101st, and 104th answers, and then explain the functions of the guard or rest for the face of the sole in the Thompson, Ingalls, Gubault, Andrews, and Carey patents and in the hand tool, and then the functions of the guard in the Helms machine.

(Objected to as an attempt on the part of the counsel to cross-examine his own witness.)

Ans. The function of the guard, generally speaking, is to keep the sole edge from moving laterally with relation to the burnishing part of the tool. In the Thompson and Carey patents the gauge which performs the office of the guard of the vibrating tool is stationary, and no part of it, under any circumstances, has any burnishing action on the face of the sole near the edge, or what may be conveniently called the tread corner of the sole edge. In the Thompson patent the burnishing surface of the rotating tool remains in the same position with relation to the gauge, so that the operator can press the sole edge against the burnishing tool while holding the face of the sole against the gauge and sliding it along the gauge, in presenting the different parts of the sole edge to the tool. The gauge assists him in holding the shoe so that the plane of the sole near the part operated upon by the tool is about the same as the plane of rotation of the tool, so that the rand lip of the tool
54 will not cut across the sole edge. In the Carey patent, No. 129,457, the sole edge cannot be pressed steadily against the burnishing surface, as in the Thompson patent, and the gauge forms a stationary rest or abutment, against which the sole is held stationary in the intervals between the blows of the revolving burnishers.

In the Ingalls patent the guard of the vibrating tool is pressed by a spring against the face or tread of the sole, and thus moves the tool bodily in a direction at right angles to the face of the sole, so that the tool conforms to the curves of the face of the sole, and at the same time is caused by the guard to turn or swivel, so that the

rand lip moves substantially parallel with the face of the sole at each point.

In the hand tool the guard lies over the face of the sole, and prevents the tool from slipping towards the upper, and also assists the operator in turning the tool in making the strokes along the side portion of the shoe, so that he can readily make strokes of considerable length without danger of running the tool off from the sole edge or causing the rand lip to cut across the sole edge.

In the Gubault and Andrews machines the tool does not swivel, so that the guard cannot operate to turn the tool in line with the sole edge, but must operate to cause the workman to turn the sole edge so that it shall be substantially in line with the movement of the tool as each part is operated upon.

In the Helms machine the vibratory movement of the tool is very short and rapid, and the tool is swiveled so that the guard not only assists the operator in presenting the sole edge in line with the path of movement of the tool, but also turns the tool slightly into line with the sole edge, in case the latter should be presented at any point slightly out of line with the path of movement of the tool. In all the tools in which the guard forms a part of or moves with the burnishing part of the tool, the part of the guard next the bed of the tool operates, to a greater or less degree, to burnish or harden the face of the sole near the edge, or to make the tread corner of the sole edge hard and compact.

(Noon recess.)

Int. 141. How is the function of the guard or rest for the face of the sole in the Helms machine different, if at all, in any substantial particular, from the function of the guard in the other machines?

55 Ans. The guard or rest in the Thompson machine gauges the width of the bed part of the tool, or determines the distance between the rand lip of the tool and the tread corner of the sole edge, so that when the sole edge is of the proper thickness it can be readily held by the operator between the guard and the rand lip, and the latter will have the proper burnishing action on the rand lip, without danger of running off towards the upper or cutting across the sole edge. The guard also assists the operator in turning the shoe, so that the burnishing part of the tool acts in line with the rand and tread corners, instead of crossing them.

In the Carey machine the gauge or guard performs the same function as in the Thompson, and also assists the operator in holding the sole edge up the proper distance towards the path of movement of the revolving burnishers, as the operator cannot press the sole against the burnishing surface, as in the Thompson machine.

In the Gubault and Andrews machines the path of movement of the burnishing tool is determined by the machine, and the guard consequently performs substantially the same function as in the Thompson patent, and also partly burnishes or hardens the tread corner.

In the Ingalls machine, as in the hand tool, the function of the

guard is to cause the axis of the tool to follow the curve of the sole tread, and also to cause the tool to turn about its axis so that, at each point in the movement of the tool, the rand lip is in line with, or tangent to, the rand corner of the sole edge.

In the Helms machine the path of movement of the axis of the tool is fixed by the machine, as in the Gubault and Andrews machines, and the tool can turn or swivel about its axis, as in the Ingalls machine, and the function of the guard in the Helms machine differs from that of the guard in the Thompson, Carey, Gubault, and Andrews patents in that it causes the tool to turn about its axis to cause the rand lip to conform to the rand corner of the sole edge, which is not done in the Thompson, Carey, Gubault, and Andrews machines. The function of the Helms guard differs from that of the guard in the Ingalls machine and hand tool in that it does not make the path of the axis of the tool correspond with the curve of the tread of the sole, as in the hand tool and Ingalls machine; and,
56 on the other hand, the guard of the Helms tool assists the operator in handling the shoe, so that the part of the sole edge at each moment operated upon is in line with, or tangent to, the movement of the tool; while in the hand tool and Ingalls machine the guard causes the path of movement of the tool to be brought in line with, or tangent to, the curve of the sole tread at each point.

Recross-examination by T. W. PORTER, Esq., of counsel for defendant:

Cross-int. 142. You have spoken, in the redirect examination, of the swiveling movement of the tool in the Helms machine. Do you find anything in the Helms patent referring to any such capacity or function of his burnishing tool?

Ans. I do not find the swiveling mentioned in the specification. The drawing shows the tool with a round or cylindrical shank fitting in a round socket, and I infer from this that it can swivel or turn in this socket, just exactly as I infer, for instance, that the finger rest can be adjusted forward, or that the main shaft G rotates, although I find no statement in the specification with relation to such adjustment or rotation.

Cross-int. 143. Then your statements in relation to the swiveling of the tool in the Helms machine are based upon an inference only, are they not?

Ans. They are based on the drawings of the Helms patent.

Cross-int. 144. Is there anything in the drawings to support your inference, except that the shank of the tool-holder is round?

Ans. No; but that seems to me sufficient.

Cross-int. 145. How can it be sufficient when, as you and every practical man well knows, a round hole and a round body fitting therein with a "driving fit" may just as well represent, in practical mechanics, immovability as well as movability of the two parts with relation to each other?

Ans. The drawing shows a spring interposed between the socket and a shoulder on the shank of the tool. The specification states that the tool-holder is backed up by a spring, and the second claim

speaks of the elastic tool-holder. If the tool shank had a driving fit in its socket and were rigid therein, the spring would have no function, and the tool-holder would not be elastic.

57 Cross-int. 146. Do you or not think the spring in combination with the tool-holder in the Helms patent performs a material function?

Ans. I think that it does, but do not think it necessary for the proper operation of the machine.

Cross-int. 147. Do you regard Helms as the first to so mount his burnishing tool as to be susceptible of a swiveling motion?

Ans. I do not. I believe the Ingalls tool has the swiveling movement.

Cross-int. 148. Please state as concisely and clearly as you can what you regard as the proper definition of the "guard" of a burnishing tool.

Ans. The term "guard" as used by me means a part of the tool which projects over the face or tread of the sole, so that with the rand lip and bed of the tool it forms, as it were, a channel, which receives the edge of the shoe within it, the guard and rand lip preventing the tool from slipping off the sole edge towards or from the upper.

Cross-int. 149. Is or not, in your opinion, the guard of a burnishing tool, when it exists therein, something that can be clearly discriminated from the other operative parts of the tool?

Ans. Not always; it is, in my opinion, always possible to indicate the part which acts as a guard, but this part may also constitute, in whole or in part, the bed of the tool.

Cross-int. 150. Then you think it may exist in the burnishing tool and yet be incapable of being discriminated from the other parts of the tool; is this so or not?

Ans. I consider the guard as the part which overlaps the tread of the sole so as to prevent the movement of the tool towards the upper. This part can always be recognized in a tool if its exists, but it cannot always be recognized as a separate or distinct part from the bed of the tool, as in addition to its function as guard it may also be, in whole or in part, what is known as the bed or burnishing part of the tool when the edge of the shoe is so shaped—that is, curved or inclined so that the tool bearing against it cannot slip off toward the upper, as it readily might if the sole edge were about at right angles to the tread and the tool had a bed which fitted it, but no guard overhanging the tread part of the sole.

(Answer objected to as entirely irresponsive and evasive.)

58 Cross-int. 151. In answer to cross-interrogatory 149 you state in substance that the guard of a burnishing tool cannot always be discriminated from the other parts of the tool, "but this part may also constitute in whole or in part the bed of the tool." Do you or not mean by this that a part of the tool may constitute the guard while it cannot be so discriminated by a person skilled in the art, and do you or not also mean that a part of the tool

may act as a guard while it is in whole or in part the bed of the tool?

Ans. I mean that in some tools there are certain portions which perform both functions of the bed and guard, and such portions might with equal propriety be called "bed" or "guard." I do mean that a part of the tool may act as a guard while it also acts as or is in whole or in part the bed of the tool.

Cross-int. 152. Then it is a fair inference from your last answer, is it not, that burnishing tools may have such form as that the same part therein performs the double function of guard and bed?

Ans. I think it is.

Cross-int. 153. And, further, that it will be impossible to define where the bed terminates and the guard begins?

Ans. Yes.

Cross-int. 154. In this connection please examine diagrams 23 to 31, inclusive, in Exhibit Corthell Manufacturing Co.'s Circular and state whether or not, in your opinion, burnishing tools made in accordance with those figures respectively would possess a guard.

Ans. In my opinion they would.

Cross-int. 155. If either or any of these tools were employed to burnish a sole edge of a thickness equal to the tool, would it, in your opinion, operate exclusively upon the edge, or would it operate upon the edge and face of the sole?

Ans. I should call it operating upon the edge and face of the sole. It would have such a bearing on the sole tread as to prevent movement of the tool across the edge toward the upper.

Cross-int. 156. Would the portion of the tool which in such case operated upon the face of the sole be a burnishing part of the tool or not?

Ans. It would.

Cross-int. 157. Would it produce upon the sole a burnished channel, as it is termed, upon its face, or would it produce a burnished edge?

59 Ans. I do not know what it would be called in the trade. It would produce a burnished surface extending from the rand by a curve to the unburnished part of the sole tread.

Cross-int. 158. But would burnish no part of the sole tread, would it, in the proper sense of the term "tread?"

Ans. I should think that the termination of the burnished part would form a convenient line for distinguishing the tread from the burnished edge as a matter of convenience in definition.

Cross-int. 159. In such case the burnishing tool, although, in your opinion, possessing a guard, would act only on the sole edge; is this so?

Ans. It would act on the part called, for convenience, the edge, but would have such bearing upon that part as to prevent movement of the tool towards the upper.

Cross-int. 160. But would not all parts of the face of the tool operate to burnish the sole in such case?

Ans. They would.

Cross-int. 161. Then what part of the tool in such case would, in

the language of the specification, be "the rest which is just below the burnishing part of the tool?"

Ans. The part which prevents the movement of the tool toward the upper in the tool now under consideration would be the same as the part of the tool shown in the patent and called "the rest which is just below the burnishing part of the tool."

Cross-int. 162. Then when such tool, all parts of the face of which burnished, was employed in the Helms machine, the description of the machine in the specification, in so far as it relates to the tool would not be applicable thereto; is this so or not?

Ans. The description would not be correctly applicable to a tool in which the entire surface burnished.

(Adjourned.)

BOSTON, *Sept.* 30, 1885.

Cross-int. 163. Please refer to your answer to cross-interrogatory 105 and state whether, in your opinion, the quotations therein made by you from the specification constitute, in the language of the question, "precise words."

Ans. The words quoted by me, in my opinion, indicate
60 beyond reasonable doubt that the guard of the tool is the part meant by the expression "rest for the face of the sole." I do not think that they express the meaning with precision.

Cross-int. 164. Do you think they refer to the guard of the tool as precisely as the other language in the specification which refers to the tool as a tool, to the hook as a finger hook, to the tool-holder, the slide, and other parts of the machine?

Ans. I think that the language referring to the guard or rest for the face of the sole is less precise or accurate than that referring to most of the other parts; but, taking the specification as a whole, there is no doubt to my mind that the language quoted does refer to the guard.

Cross-int. 165. Admitting it to be feasible to burnish sole edges in the Helms machine with the face of the sole resting against the front of the finger hook, would not, in such case, the words in Helms's specification "and the face of the sole against the rest, which is just below the burnishing part of the tool," apply more properly to the front face of the finger hook than to any part of the burnishing tool?

Ans. If it were feasible to burnish sole edges with the tread in contact with the finger hook those words might, perhaps, apply to the finger hook [but I am certain that it is not feasible to burnish sole edges practically and in quantities with the tread in contact with the finger hook, and I am consequently certain that, as a matter of fact, the words do apply to the guard, and it seems to me futile to attempt to say what they would refer to under the circumstances which it is impossible for me to conceive.]

(All parts of the answer included in brackets objected to, as the preceding portion of the answer is full, entire, and complete, and the part objected to is not called for in the answer, is not responsive

thereto, and would more properly emanate from the counsel for complainant than from his expert.)

Cross-int. 166. Admitting it to be feasible to burnish sole edges in the Helms machine with the face of the sole resting against the front of the finger hook, would not, in such case, the words in Helms's specification "and the face of the sole which projects below the tool" more properly apply to the front face of the finger hook than to any part of the burnishing tool?

Ans. I don't admit that it is feasible to so burnish, and it
61 seems to me that to answer the question would be mere guess-work. Taking the words by themselves they might more exactly apply lo the finger hook than the tool.

Cross-int. 167. Please note that in the preceding question you are not asked to admit anything, but merely to answer a hypothetical question in relation to a suggested condition of use. Will you please reconsider said question and answer it to the best of your ability upon the basis on which it is propounded?

Ans. Under the supposed conditions, I should judge that the words applied to the finger hook.

Cross-int. 168. Is not the finger hook in the Helms machine, as shown in the drawings of the patent, a surface just below the tool, and the only surface which projects below it?

Ans. It has a surface which is most directly below the tool of any in the machine.

Cross-int. 169. In view of the fact that Helms's tool is the same tool, whether in his machine or out of it, as you have stated; that its swiveling was an old feature at the date of his invention; that the finger hook, at the date of Helms's invention, was well-known in sole-edge finishing machines, and was cited as a reference to Helms's claim therefor in his burnishing machine, and that a patent was refused unless he could show some new function thereof, to which ruling his solicitor did not object, but assumed to comply with, do you believe that the tool and finger hook as employed together by Helms constituted, in a just and proper sense, a patentable invention?

Ans. I do.

JOS. P. LIVERMORE.

Attest:

WM. A. COPELAND,
Special Examiner.

62 *Stipulation.*

It is hereby agreed, subject to the approval of the court, that Eugene Humphrey may act as special examiner in taking testimony for the defendant in the above-entitled action.

Evidence for Defendant Taken Before me, Eugene Humphrey, Special Examiner.

Present: J. E. Maynadier, Esq., of counsel for complainant; T. W. Porter, Esq., of counsel for defendant.

Deposition of Charles H. Helms.

Direct examination by T. W. PORTER, Esq., of counsel for defendant:

BOSTON, *October* 7, 1885.

Int. 1. What is your name, age, residence, and occupation?

Ans. Charles H. Helms; 55; Poughkeepsie, New York; inventor and agent.

Int. 2. Are you the patentee named in the United States patent now shown to you, No. 173,284, dated Feb. 8, 1876?

A. Yes, sir.

Int. 3. Please state what you intended to be the rest for the face of the sole, in burnishing sole edges with such machine, at the time you filed your application for said patent.

Ans. What I intended to be the rest for the face of the sole, when burnishing a shoe edge, was a finger hook so constructed that it would at once answer for a rest of the sole of the shoe and a guide to help the operator to steady the shoe under the action of the polisher while in motion by grasping the hook with his finger.

Int. 4. Please describe, in your own way, the manner or way in which you intended to use the machine shown in your said patent, making use of any exhibits that may be before you?

Ans. The machine being put in motion, I take the shoe in both hands and start at the shank or ball and slide the shoe along,
63 held steadily by hand, under the action of the polisher, up to the point where the circle of the toe commences; then I place the forefinger of my left hand against the back of the hook, place my thumb on top of the shoe, and by that means hold the button of the sole down against the rest "D," and with the right hand force the sole edge up against the polishing tool and turn the toe around, under the action of the tool, back and forth. After the toe is passed, then I take my finger away from the hook and run the sole edge along under the tool as before.

Int. 5. Please examine the model now shown you, marked "Defendant's Exhibit Helms Model, E. H., special exam.," and state whether or not it represents a machine such as is shown and described in your said patent.

Ans. I think it does, except one point—that is, I think the polishing tool "C" is fitted a little too near the face of the finger rest "D;" there should be a small space between.

(Model referred to here put in evidence, marked as above stated.)

Int. 6. Please point out upon the Exhibit Helms Model the part referred to in the patent as the rest for the face of the sole.

Ans. That part I should designate as below the polisher and on the front of the hook. (Witness places his finger on the model below the polisher and on the front of the hook.)

Cross-examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Cross-int. 7. In Defendant's Exhibit Helms Model it seems to me impossible for the tool to swivel. What do you believe to be the effect, if any, of preventing the tool from swiveling?

(Objected to as immaterial, in view of the fact that nothing is said or intimated in the patent in relation to a swiveling action of the tool.)

Ans. The tool comes in too close contact in the model to the face of the finger rest to allow the tool to swivel. The effect would be that the tool would cut; the edges of the back flange would be apt to cut into the sole of the shoe; also the lip that runs between the sole and upper would mar and disfigure the inside edge of the sole.

Cross-int. 8. Do you know of the experiments made by your assignees in 1875 or 1876, when they attempted to get rid of liability under the fourth claim of the Ingalls patent?

64 (Objected to as irrelevant, immaterial, and not admissible, as not having been broached by direct examination.)

Ans. Yes.

Cross-int. 9. Do you recollect how many months were occupied in these experiments, and what the result was?

(Same objection as to cross-int. 8.)

Ans. I do not exactly. I know that we experimented. The result was that it was found that the swiveling of the tool was an advantage.

Cross-int. 10. Do you know why the tool is set so close to the finger rest in Defendant's Exhibit Helms Model?

Ans. I take it to have been an oversight in the man who made the model in not setting it a little further off.

Cross-int. 11. Did you have anything to do with the making of Exhibit Helms Model?

Ans. Not a thing. I never saw it before this morning.

Cross-int. 12. Where was your first machine used?

Ans. The first Helms edge-setter was put up for Thomas Fearey & Sons, in Albany, New York.

Cross-int. 13. Do you know of anybody who attempted to burnish sole edges prior to you by holding the edge to be burnished firmly up against the face of a reciprocating burnisher, and so that the operator could use the muscles of his legs and body while so holding the edge up against the burnisher?

(Objected to as inadmissible, immaterial, and inquiring about a matter not gone into on direct examination or referred to in the patent in suit.)

Ans. I do not.

Cross-int. 14. Whom do you believe to be the original and first inventor of this way of burnishing, and what do you believe to be its value as compared to all other ways known to you?

(Same objection as to cross-int. 13.)

Ans. I think I was the first to hold by hand the edge of a sole to a reciprocating polisher in that way, so far as I know. I think it is the quickest way to burnish the edge of a shoe.

Cross-int. 15. How about the quality of the work done, as compared to all other ways?

(Same objection as preceding.)

65 Ans. According to my experience and knowledge, it is full as good as the best hand work.

Cross-int. 16. You personally gave me instructions when I wrote your specification, did you not?

Ans. I think, to the best of my recollection, I did give instruction as to certain points in the machine for specification.

Cross-int. 17. You knew, did you not, that I was employed by George H. P. Flagg to obtain the patent on your invention?

(Objected to as immaterial.)

Ans. Yes, sir.

Cross-int. 18. You were also aware, were you not, of the rejection on reference to the Tayman patent?

Ans. I don't remember about that. I have forgotten. I don't remember a single thing about it.

Cross-int. 19. Suppose the operator holds the shoe so that the tread corner of the sole edge is pressed hard against the bed of the tool while that part of the sole edge near the rand corner is not in contact with the tool, won't he do bad work?

Ans. Most assuredly.

Cross-int. 20. To do good work he has got to press the whole of the edge alike against the burnishing part of the tool, hasn't he?

Ans. Yes, sir.

Cross-int. 21. What is your belief about the pressure which the operator will exert in burnishing an edge like that on Defendant's Exhibit Six, Burnished Edge?

Ans. I couldn't say. It is very difficult to determine. I should think it would depend a good deal upon the solidity or hardness or softness of the leather.

Cross-int. 22. How long did you make and sell the Helms burnishing machine before you made arrangements with Dr. Flagg to carry on the business?

Ans. I never built but one really practical machine; that was built by Flagg and myself. I think that was the case, that we built but one practical machine.

Cross-int. 23. Can you not now recollect that this machine was built after your attempts to get rid of the 4th claim of the In-

galls patent and before you applied for your patent, in December, 1875?

66 (Objected to as immaterial.)

Ans. I think, if I recollect right, that that machine was built and marked Helms patent shoe-edge burnishing machine, and sold to Thomas Fearey & Sons, of Albany, and that they have it now unless Flagg or some one else has bought it in.

Cross-int. 24. Can you recollect what year it was when you brought a model of your machine to Dr. Flagg and showed it to me as counsel for Dr. Flagg?

Ans. I don't think it would vary four months from the time the patent was applied for.

Cross-int. 25. And, so far as you can recollect, were not the larger part of those four months used up in the attempt to get rid of the Ingalls claim for the swiveling tool?

(Objected to as immaterial and inadmissible.)

Ans. Not so far as I was concerned, although I knew of the Ingalls patent, but thought it of no consequence in the machine I first built; but while the first machine was at Fearey & Sons being used Dr. Flagg wrote to me at my home in Poughkeepsie, and stated to me in his letter that James Malloy had suggested the swiveling of the polishing tool, and I objected to it on the ground that it was an infringement on the Ingalls patent, and thought that we could get along without it, but Flagg and Malloy thought we had better try it, and we did so, and the alteration was put on that machine either at Fearey's or in Boston at Malloy's factory. It was about that time that the machine was put in a company and the company bought the Ingalls machine or got control of it in order to use the swiveling tool.

Cross-int. 26. Don't you recollect that when you first brought your model to Dr. Flagg, say within one or two weeks, you submitted the model to me, by Dr. Flagg's direction, and that that was at least two or three months before December 7, 1875, when you applied for your patent, and that I then advised that the machine could not be made and sold in view of the 4th claim of the Ingalls patent for a swiveling tool?

(Objected to as immaterial and incompetent, in that neither the direct examination nor the patent have any reference to Ingalls' patent swiveling tools or interviews with and advice of counsel.)

67 Ans. I really don't remember about that. It might have been the case, but I have no recollection. The first I knew about the swiveling tool was the Malloy suggestion.

Cross-int. 27. Do you think that the swiveling tool is not shown in your patent?

Ans. I think not. I think there is nothing in the patent that refers to it. I think it is not shown practically in the machine, and yet it was easily made so by rounding the back of the polisher. It

was not in my mind to do it. I was going to get along without it, as I knew of the Ingalls patent.

Cross-int. 28. You have now looked at the Patent Office copy of the drawings of your patent. Do you still think that those drawings do not show a swiveling tool?

Ans. I think they do not show my intention of having that tool swivel really.

Cross-int. 29. Do you recollect the first change in the form of the shank of the tool that was made at Malloy's suggestion?

Ans. I do not.

Cross-int. 30. How long has it been since you were interested in the stock of the Union Edge Setter Company?

(Objected to as incompetent and immaterial.)

Ans. I don't remember, but I think I sold my stock—the most of it—in about nine months to a year after it was issued to me to Fearey, and the stock I did not sell to Fearey I sold to Flagg about that time.

Cross-int. 31. And that was over six years ago, wasn't it?

(Objected to as immaterial and incompetent.)

Ans. Yes.

Cross-int. 32. The operator, in using your machines, has got to be careful, hasn't he, to keep the edge pressed evenly against the burnishing part of the tool, so that the pressure will be the same clear across the edge, and not heavier near the tread corner than it is near the rand corner, or *vice versa*, and the quality of the work will depend mainly upon his ability to get this even pressure? Are these statements substantially correct?

(Objected to as incompetent and immaterial and indefinite, in that it appears in answer to questions propounded in cross-
68 examination that the machine was first used without a swiveling tool, was subsequently used with a swiveling tool, and the question is not confined to either form of machine.)

Ans. Yes.

Cross-int. 33. Taking leather like that in the sole of Defendant's Exhibit 6, Burnished Edge, what, in your judgment, would be the average pressure of the sole against the tool?

Ans. I think it would be very hard for me to determine, as it would depend upon the hardness of the leather and thickness of the sole.

Cross-int. 34. Taking that particular sole shown in Exhibit 6, Burnished Edge, what should you judge would be the average pressure or lifting force exerted by the operator?

(Objected to as incompetent, inadmissible, and immaterial.)

Ans. For a guess, I should say ten pounds pressure; that is the only thing I can do, is to guess at it.

Cross-int. 35. Do you recollect any reason why your application

for a patent was delayed till December instead of being made when you first brought your model to Dr. Flagg?

(Objected to as incompetent, inadmissible, and immaterial.)

Ans. I don't remember about that.

Cross-int. 36. Do you recollect who built the model that was used as a Patent Office model?

Ans. I won't really be sure. I am under the impression that I did it myself. I cannot say positively anything further.

Cross-int. 37. Suppose you were informed that it was built under your direction by James W. Malloy after you brought your first model to Dr. Flagg, could you deny the truth of the information? Understand, my question relates to the Patent Office model and not to the model which you brought to my office in the summer of 1875.

(Objected to as immaterial and incompetent.)

Ans. My impression is that I made the model answering to that drawing in the patent. I may be mistaken. If I didn't make it all myself I suggested to some one here in Boston to do something about it. I think it was Mr. Newhall, pattern-maker. I think I had him make the finger rest more hooking.

(Adjourned to 2 p. m.)

69 2 P. M.

Cross-examination resumed.

Cross-int. 38. Can you now recollect that the model sent to the Patent Office was made by J. Q. Newhall, a pattern and model maker working for Dr. Flagg?

(Same objection.)

Ans. I don't. As I stated before, he might have made some alterations, but I don't remember the facts in the case.

Cross-int 39. You do recollect, don't you, that the model you brought on to Boston some months before you filed your application was not used as the Patent Office model?

(Same objection.)

Ans. I can't recollect any such thing. My memory only directs me to the idea that I went home to make a model, from Boston, and, as near as I can remember, Mr. Flagg advanced me some money—how much I don't know—to make that model with. I made the model and brought it on here, as near as I can remember, according to my ideas of a model for a machine of that kind, and it may be, although I have no distinct recollection, but it may be that I had some alterations made here. It seems like a dream to me. That is all I can say about it.

Cross-int. 40. Your present recollection, then, is that you brought a model of an edge-setting machine to Boston three months or more before December 7, 1875; that that model was taken to James W.

Malloy's, who commenced immediately under your direction and under Mr. Flagg's employ to make a working machine, and you then returned to Poughkeepsie to make a model for the Patent Office, and afterwards came to Boston again and brought with you that Patent Office model; is this about right, as near as you now recollect?

(Same objection.)

Ans. I won't be sure as to that; but I think that as soon as I showed up the iron machine—that is, the first iron model I made for experimental showing—I think about that time—I won't be sure of the exact number of months before December, 1875—that Mr. Flagg was very anxious about that time for me to produce the model and get the patent as soon as possible; and it may be that about that time—I won't be certain—that we proceeded to make the drawings and patterns gotten up by Mr. Newhall, and I acquiesced in
70 the style of the machine, and from those patterns Mr. Malloy made the machine, and I think Mr. Malloy had something to say about the pedestal. Whether I made the Patent Office model before or after I had these talks with Malloy and Newhall I cannot say.

Cross-int. 40*a*. Please look at this drawing (Exhibit Complainant's Patent Drawing Enlarged) and state whether it correctly shows the space between the finger rest and tool the same as the drawings in the patent except for difference in the scale.

(Same objection.)

Ans. Well, take it uniformly, I should think it did.

Cross-int. 41. Do you think that the sole edge is in proper contact with the burnishing tool in Exhibit Complainants' Drawing Enlarged?

(Same objection.)

Ans. I should think it was in proper contact to polish the edge well.

Cross-int. 42. Do you see anything wrong in Exhibit Complainants' Drawing Enlarged or does it, in your opinion, correctly show the relation between the tool and the finger rest, and also the proper presentation of the sole edge to the tool?

(Same objection.)

Ans. Well, I think that this exhibit shows decidedly the proper presentment of the edge to the polishing tool; but it shows also, according to my judgment, that the tread of the sole, or bottom part of the sole, does not touch the front face of the finger rest, which appears to me to differ somewhat from the real intention shown by me, as a general thing, in the patent No. 173,284. I see that difference in it between the intention of my machine and this.

Cross-int. 43. Don't you see that if the tread of the sole touched the front face of the finger rest, as the burnisher and tool are shown in Complainants' Patent Drawing Enlarged, that it would be impos-

sible to bring the sole edge in proper contact with the burnishing part of the burnisher?

(Same objection.)

Ans. Well, I think the way I looked at the thing at the time that I made it my idea was that I could use the face of the rest in combination with the polishing tool and conform the edge of the sole to the tool, around the toe, and polish the edge away across, and I think I can polish the edge as desired around the toe.

71 (Question being re-read.) Yes, I think so, according to this drawing.

Cross-int. 44. Please read your fourth answer, and state whether you mean to say that in the practical use of your machines the tread of the sole is always held against the front face of the finger rest.

Ans. That was my design originally.

Cross-int. 45. Are you aware that you are now attempting to aid these infringers to kill the patent which you sold to Dr. Flagg?

Ans. I am not aware of any such thing. I am simply stating the facts under which I conceived the idea of making that first machine. and I think it is fair to say that the specifications of this patent shows clearly that that was my intention.

Cross-int. 46. By first machine, in your last answer, do you mean the iron model which you first brought to Boston and showed to Dr. Flagg and myself?

Ans. I mean the first machine, and also the model from which this patent was procured. In principle they were the same, as near as I can recollect; also, I will say that the iron machine did not contain so much of a hook; it was shorter and more of a blunt face, as near as I can remember.

Cross-int. 47. Will you testify positively that it was possible to present an edge properly to the burnishing tool in that iron model and yet keep the tread of the sole always in contact with the finger hook, or are you not now aware that the position of the tread of the sole is in all cases determined as soon as the edge of the sole is brought into proper contact with the burnishing part of the burnishing tool?

Ans. No, sir, I won't (to the first branch of the question). Yes, I am aware of that (to the second branch of the question).

Cross-int. 48. What is the burnishing part of the burnishing tool shown in the drawings of the Helms patent—that is to say, how much of the inclined face of the guard ordinarily burnishes or rubs against the sole?

Ans. I think that depends a good deal on the shape of the iron. If the polishing tool is made to polish what is technically called a "square" edge, perhaps one-sixteenth of the guard might rub and form the bead of the outer edge; and if the guard should be a half inch long a quarter inch might touch the face of the sole, but

72 I don't think that would polish or be of any benefit to the edge of the sole proper or that part which is trimmed.

Cross-int. 49. What do you think is the fair meaning of this ex-

pression, namely, that part of the tool which is just below the burnishing part of the tool.

(Objected to as merely supposititious, and, being no part of the record, it is immaterial and irrelevant.)

Ans. I will say this: In a square-edge tool it might mean the lip or guard which runs on the face of the sole. In a bevel-edge tool that lip would consist wholly of a burnishing surface.

Cross-int. 50. Do you recollect whether you conferred with me or not when I made the amendments of January 5 and January 19, 1876, printed on pages 199 and 201 of the Spinney suit?

Ans. I don't remember whether I did or not.

Direct examination resumed:

Int. 51. Please state in connection with your answer to Int. 47 whether or not you consider it feasible to keep the tread or bottom of the sole in contact with the face of the finger hook while burnishing the toe portion of the shoe in a machine like that shown in your Exhibit Patent.

Ans. I say that was my original intention. I think it is feasible on a great many kinds of goods.

Re-cross-examination:

Cross-int. 52. Isn't it plain to you that the tread of the sole cannot touch the finger rest, as shown in the drawings of your patent, if the edge at the toe have the same relation to the tread as shown in Exhibit 6, Burnished Edge, unless you bring the tread near the edge in contact with the slanting part of the guard, and also keep the rand corner of the edge out of contact with the burnishing tool?

Ans. All I have to say to that is that in a working machine it would have to be made relative to the style of goods to be burnished. If made just like this drawing, then I should say it couldn't.

Redirect:

Int. 53. If the machine and style of goods were adapted each to the other, would there be any difficulty in burnishing the
73 edge of the sole like that shown in Exhibit 6, Burnished Edge when the face of the sole bore against the front of the finger rest?

Ans. I don't think there could be any difficulty if they corresponded; certainly not.

Recross:

Cross-int. 54. And yet you know, do you not, that the place where the face of the sole will be is determined by the proper contact of the edge with the burnishing tool?

Ans. It would depend altogether on the shape of the face of the finger rest.

CHARLES H. HELMS.

Attest: EUGENE HUMPHREY,
Special Examiner.

Deposition of John Van Aernam.

Direct examination *of* T. W. PORTER, Esq., of counsel for defendant:

BOSTON, *Oct.* 13, 1885.

Int. 1. What is your name, age, residence, and occupation?

Ans. John Van Aernam; 34; Albany, New York; now I am working at the carpenter's trade.

Int. 2. Have you ever been an operator on the Helms sole-edge burnishing machine?

Ans. I have.

Int. 3. Please state when, where, and for how long a period.

Ans. About the early part of 1876 was my first experience; at Messrs. Thomas Fearey & Sons' factory, in Albany, New York; about four seasons.

Int. 4. Please examine the model now shown you, marked "Defendant's Exhibit Helms Model, E. H., special examiner," and state whether or not it represents a machine such as you operated on at Fearey & Sons, as stated.

Ans. It does.

74 Int. 5. Please explain the manner of using this machine at Feary & Sons', and particularly the manner of use when burnishing the toe portions of the shoe, using the Exhibit Model or any other exhibits you wish in making your answer.

Ans. I put my finger right around the hook and my thumb on the toe of the shoe; then I work it backward and forward, resting the sole on the face of the hook, keeping the edge up against the polisher. I place the edge up against the iron and rest the sole against the hook and move the shoe along from the toe to the ball until burnished.

(Witness held a shoe-sole edge against the tool and the bottom of the sole against the face of the hook, with his finger around the hook and his thumb on the upper while making his answer, thus illustrating the same.)

Int. 6. Please state whether, during the four seasons while you operated on the Helms machine for Fearey & Sons, you instructed any other persons to use the Helms machines in burnishing sole edges; and, if so, in what manner did you teach them to use such machines as relates more particularly to the finger hook?

Ans. I did (to the first part of the question), in the same way as I stated before in my evidence (to the last part of the question).

(Witness illustrates by taking a shoe and placing the toe portion of the sole edge against the tool on the Helms model and pressing the bottom against the face of the hook, placing his finger around the back of the hook and his thumb on the upper of the shoe.)

Int. 7. Please examine the sketch now shown you, marked "Defendant's Exhibit Complainants' Patent Drawing Enlarged, E. H., special examiner," and state whether or not it correctly represents

the method of presenting the shoe to the machine as practiced by you at Fearey & Sons, when you were working there.

Ans. It does.

(Sketch referred to now put in evidence, marked as stated above.)

Cross-examination by J. E. MAYNADIER, Esq., of counsel for complainants:

Cross-int. 8. Did you ever burnish by hand or by any other machine than the first one used by you at Fearey's?

Ans. I burnished by hand, but never with any other machine. That was the first one and the only one.

75 Cross-int. 9. What length of time do you mean by about four seasons?

Ans. About eight months to a season.

Cross-int. 10. In burnishing by hand what would be the effect if you should bear harder on the tread corner of the sole than on the rand corner—that is, rub the burnisher hard on the tread corner and light on the rand corner?

Ans. It would leave a kind of a dent—that is, to a certain extent—that is, owing to how the iron is cut.

Cross-int. 11. It would spoil the work, wouldn't it?

Ans. Not necessarily.

Cross-int. 12. A workman who didn't know enough not to bear hard on one corner of the sole edge and light on the other would be a poor workman, wouldn't he, in your opinion?

Ans. He would, unless he was learning. If he claimed to be a mechanic he would be a poor workman; if he was learning it would be owing to the man who was learning him.

Cross-int. 13. When did you first know that you had to bear equally all across the sole edge in order to burnish the edge properly?

Ans. After I learnt.

Cross-int. 14. In what year was that?

Ans. In the early part of 1876, when I first began to run this machine—hand setting. I worked at that over two years before—that is, in the factory.

Cross-int. 15. Did you know before you began to run the Helms machine at Fearey's in 1876 that you must have the pressure about equal across the edge in order to do good work?

Ans. I did.

Cross-int. 16. Can you now see that if the finger hook shown in "Defendant's Exhibit Complainant's Patent Drawing Enlarged" was a trifle farther forward the rand corner of the sole edge would take the pressure and the tread corner of the sole edge wouldn't touch the bed of the tool?

Ans. The way it now sets, it would. (Question being re-read, witness says:) It wouldn't; it would carry it off.

Cross-int. 17. Can you not also see that if the finger hook were carried a trifle farther back in "Defendant's Exhibit Com-

76 plainant's Patent Drawing Enlarged" the tread corner of the sole edge would take all the pressure and the rand corner of

the sole edge would not touch the tool when the tread of the sole was pressed against the face of the finger hook?

Ans. It can be made to catch on the full edge. If it is thrown back a little—just a trifle—it won't make much material difference; the shoe will only have to be pressed back a little further.

Cross-int. 18. I don't think you have answered the question. Please answer it. The question is about that drawing.

Ans. Not necessarily.

Cross-int. 19. Please look at the drawings of the Helms patent and state which you think fairly shows that drawing enlarged—the Complainant's Exhibit Complainant's Patent Drawing Enlarged or the Defendant's Exhibit of the same name.

(Objected to because, 1st, not opened on direct; 2d, the Helms patent drawing shows no shoe or anything else by which the witness can properly make a comparison between the sketches and the patent drawings; and, 3d, this witness is not introduced as an expert, but as a mechanic to testify what he knows of the practical use of the Helms machine, and while he may testify properly as to a sketch showing the shoe in contact with the operative parts of the machine, it does not follow that he can testify as to the diminished patent drawings which show no shoe.)

Ans. The defendant's does. I think the complainants' does not.

Cross-int. 20. In the "Defendant's Exhibit Complainants' Patent Drawing Enlarged" the front face of the finger hook is shown flat below the lower end of the guard of the tool, while in "Complainants' Exhibit Complainants' Patent Drawing Enlarged" it is shown curved below the lower end of the guard of the tool. Do you agree with me as to this?

(Same objection.)

Ans. There is more curve in the complainants' than there is in the defendant's—a little.

Cross-int. 21. And in the patent it is shown curved, as in the complainants', and not flat, as in the defendant's, below the guard, isn't it, in your opinion?

(Same objection.)

77 Ans. I think there is a little more curve in the patent than there is in either one—a trifle.

Cross-int. 22. In your fifth answer, as I understand it, you say that when you used that machine at Fearey's you held the tread of the sole touching the finger rest all the time—that is, when burnishing around the toe, and also when burnishing from the toe to the ball. Please explain more fully whether you mean to testify that you held the tread of the sole so as to touch and bear against the face of the finger hook during all the time you were burnishing a shoe; if not, during what part of that time?

Ans. When I burnished a shoe from the ball to the toe I pressed the bottom or tread of the sole against the finger hook in this manner: (Illustrating by a shoe held as described against Exhibit

Helms Model, with the forefinger of the left hand around the hook and the thumb of the same hand pressing the upper and the palm of the hand below and supporting the shoe, while moving the shoe with the right hand, until the toe-portion of the sole edge is passed, when the position of the shoe in the hands and the hands in relation to the machine are reversed in order to burnish the other side of the fore part of the sole edge.)

Cross-int. 23. Then you mean to say that you kept the tread or bottom of the sole pressed against the front of the finger hook during the whole operation of burnishing the fore part—that is, both sides of the ball and around the toe?

Ans. Yes, sir; as I have shown there with the model.

Cross-int. 24. Do you also mean to say that you burnished in this way all the time you were at Fearey's?

Ans. I do.

Cross-int. 25. How about burnishing the shank?

Ans. I never burnished any shanks on that machine.

Cross-int. 26. Then you did not take any pains to get an equal pressure across the sole edge when you used the Helms machine at Fearey's?

Ans. I did.

Cross-int. 27. Do you believe it possible to burnish both sides of the ball and toe on the Helms machine which you used at Fearey's in a proper manner—that is, fairly good work—unless you got the pressure pretty near equal across the sole edge?

78 Ans. We got the pressure equal and had to do good work.

Cross-int. 28. Don't you know that it is impossible to get the pressure equal across the sole edge if you have to keep the bottom or tread of the sole pressed against the finger rest? I mean in that machine at Fearey's as well as all other Helms machines.

Ans. I claim that the finger rest is a help to get even pressure.

Cross-int. 29. Do you know of any point more important in doing good work on the Helms machine or by hand burnishing than to get even pressure across the sole edge?

Ans. No different from what I was first shown.

(Question re-read and witness answers:) No; I do not.

Direct examination resumed:

Int. 30. Please state the quality of work burnished by you on the Helms machine at Fearey & Sons—that is, how good a quality of work you did on it.

Ans. What they termed first-class work; and at the time or about the time of the Centennial I did some work for that, for to show there.

JOHN VAN AERNAM.

Attest: EUGENE HUMPHREY,
Special Examiner.

Deposition of Robert Ashe.

Direct examination by T. W. PORTER, Esq., of counsel for defendant:

BOSTON, *October* 19, 1885.

Int. 1. What is your name, age, residence, and occupation?

Ans. Robert Ashe; 44; Somerville, Mass.; machinist.

Int. 2. Are you the patentee named in United States patent No. 313,155, dated March 3, 1885, for an improvement in edge-burnishing machine?

Ans. I am.

(Patent introduced and marked Defendant's Exhibit Ashe Patent.)

79 Int. 3. Does or not the machine used by the defendant in this suit, and to restrain the use of which this suit is brought, correspond with the machine represented in your patent?

Ans. It does not correspond with it in every detail, but does so substantially.

Int. 4. Did you make the alleged infringing machine used by defendant Keith?

Ans. I did not personally make the machine, but it was made for me?

Int. 5. Please state how the finger rest is arranged in this Keith machine. Is it or not arranged so that it can be used as a rest for the face of the sole?

Ans. It is arranged behind the lever carrying the shank-burnishing iron (the shank-burnishing iron being arranged behind the forepart burnishing iron). The hook has an adjustment by means of which it can be brought nearer to or farther from the iron as an operator may desire, but cannot be so adjusted in relation to the forepart burnishing iron as to, at any time, come in contact with the face or tread of the sole.

Int. 6. Please state whether or not there is embodied in the alleged infringing machine used by Keith an elastic tool-holder.

Ans. No; there is not.

Int. 7. Is there any such combination of parts in the Keith machine as is embodied or set out in the third claim of complainants' patent?

Ans. There is not, and never was.

Int. 8. Please state whether or not previous to the date of the Helms patent it was common to embody in the same machine a capacity for both trimming and burnishing the edges of shoe soles by a mere change of the operative tool.

Ans. I suppose it might be held to be common, inasmuch as different people had constructed machines adapted to finish the edges of boot and shoe soles, the process of finishing embracing the trimming as well as the burnishing of the edges. Such a machine is shown in the patent of B. J. Tayman, No. 136,790, dated March 11, 1873. The Tayman machine was designed to both trim and

burnish. In the patent of S. H. Hodges, No. 117,287, July 25,
80 1871, is shown a machine adapted to trim and burnish the edges of boot and shoe soles by merely changing the operative tool, and the patent issued to D. McLaughlin, No. 113,546, April 11, 1871, shows a machine adapted to trimming the edges of boot and shoe soles, which, by changing the operative tool (cutter) and substituting in its place a burnisher, will also burnish the edges. On the whole, I should say it was common and well known.

Int. 9. At the date of complainants' patent were or not, in your opinion, sole-edge burnishing machines of the rotary and vibrating types equally well known? State your reasons for such answers as you may give.

Ans. They were equally well known. The reason I say so is that I find a burnishing machine patented by J. P. Molliere, dated December 18, 1855, No. 13950, which had a rotary burnisher; S. W. Chamberlin's patent, No. 32859, July 23, 1861, had a rotary burnisher; B. Q. Budding's patent, No. 42555, May 3, 1864, had a reciprocating burnisher; N. S. Thompson's patent, No. 50856, November 7, 1865, had a rotary burnisher; A. C. Cary's patent, No. 129,457, July 16, 1872, had a double burnisher, rotary, operating in opposite directions; B. J. Tayman's patent, No. 136,790, March 11, 1873, had a rotary trimmer and burnisher; Levi Hussey's patent, No. 155,447, September 29, 1874, had a reciprocating burnisher, and in the English letters patent of P. F. Gubault, No. 879, March 14, 1868, there is a rotary trimmer and a reciprocating burnisher, and in English letters patent of Albert C. Andrews, No. 59, January, 1874, is a rotary trimmer and a reciprocating burnisher. In the machines embodied in the above-cited patents the boot or shoe to be acted upon was presented and manipulated by hand against the operative tool; but there are many other machines, before the date of complainants' patent, in which rotating and vibrating tools are employed and in which the boot or shoe operated upon is presented to the operative tool upon a jack.

Int. 10. Please state whether, in your opinion, there could have been, at the date of the Helms patent in suit, any novelty in presenting the shoe to be burnished to the machine by standing in front thereof and pressing the sole edge against the burnishing iron while the shoe was held in the hand of the operator. In giving
81 your answer please refer to such patents as illustrate the methods of presenting the shoe to the burnishing iron when held in the hand of the operator.

Ans. I don't think there could possibly have been any novelty in the method of presenting a boot or shoe held in the hands of an operator to the action of a burnishing tool. In the Molliere machine, before referred to by me, the edge to be burnished was presented to the burnisher in a vertical or nearly vertical position; I mean by that the face or tread of the sole being in a nearly vertical position. In the Chamberlain and Budding machines, before referred to by me, the method of presentation was substantially the same as in the Molliere machine, and the same applies to the machines of Thompson, Tayman, Cary, and Hussey, before referred to

In the Gubault and Andrews machines the face or tread of the sole was about horizontal when the edge was presented to the action of the burnisher, the pressure against the iron being exerted by the muscles of the arms and weight of the body of the operator, if required, while with machines previously mentioned by me the pressure against the burnisher was upward and exerted mostly by the muscles of the arms and legs of the operator. There have been machines made in which the boot or shoe was presented by hand, the face or tread of the sole being in or near a vertical position, but in which the pressure against the burnisher was exerted downwards. I don't think that machines of the latter types have ever gone into very general use.

Int. 11. Please state whether, in your opinion, the finger hook performs any other or different duty when employed with a vibrating burnishing iron than with a rotary burnishing iron. In giving your answer please give such reasons therefor and refer to such patents as you may see fit.

Ans. I do not see how it is possible for it to perform any duty with one that it does not when used with the other. Its duty in either case is to steady the hand of an operator, and whether the tool reciprocates or rotates as a hook it can do no more than to steady the hand. In Tayman's patent such hook is found, and its duty is stated to be as follows: "Q is a finger support, seen in detail in Figs. 9 and 10, which is secured to the swivel C by means of the screws *g g;* it has on its front end a curved projection, *h*, on which
82 the operator places a finger to steady his hand in holding the shoe and changing its position." The hook shown in the patent of Helms performs, in addition to the finger or hand steadying office, the duty or office of a rest for the face or tread of a boot or shoe sole.

Int. 12. Please examine the exhibit now shown you, marked "Defendant's Exhibit Helms Model," and state what you know about the production thereof and how it compares in similarity or otherwise with the machine shown in the drawings in the Helms patent in suit.

Ans. I had that model made from drawings which I made, enlarged from the drawings shown in the said Helms patent. It substantially agrees with the description contained in Helms' specification, except that the head is not made hollow for heating purposes, as shown in the patent. I have not shown a space between the front surface of the part D and the burnishing tool C proportionate with what such an enlarged view of the patent drawing would show; but instead of showing such space I chose to show a burnisher adapted to a very wide sole edge, the extra width of edge iron filling the space which would show if a much smaller iron were in the model, and part D was not adjusted forward to the tool. The front face of the hook or piece D is, I think, slightly longer than the proportion of the patent drawing would show, but its relation to the burnisher and its adaption to perform the duties originally intended by the inventor to be performed by it are precisely the same as set forth in the specification.

Int. 13. What, in your opinion, is the "rest for the face of the sole" referred to in complainants' patent?

Ans. In my opinion it is the front face of the finger hook or the part marked "D" in the drawings in the Helms patent.

Int. 14. What are the reasons upon which you base this opinion?

Ans. I base this opinion upon the fact that in the original specification of the Helms patent in suit the words "rest for the face of the sole" do not occur, while in that original specification I find all the letters of reference precisely as they exist in the patent as granted, both in the specifications and drawings. I also find in the original specification, in the second paragraph thereof, the following words:

83 "And a finger rest to aid the workman in holding the edge up to the tool," the tool being marked C in the drawings; and in the fifth paragraph I find the words: "The workman passes (presses?) the edge up against the tool and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger rest D, especially when burnishing the corners of the toes." In that original application the inventor set forth three claims, two of which were rejected. (See examiner's letter, December 13, 1875, in copy of file wrapper and contents in Helms' application for his patent.) In response to said letter the inventor's attorney writes, under date of January 5, 1875, as follows: "In view of office letter of December 13, 1875, I hereby amend my application—edge-setter—filed December 7, 1875, as follows:

By erasing the first clause of claim and substituting the following:

1. In combination with a burnishing tool and rest for the face of the sole, the finger rest D, substantially as described.

2. By erasing the third clause of claim and substituting the following:

3. The burnishing tool, its holder B, slide F, ways, *c* and *d*, shaft G, and pin *a*, all combined together as specified."

This is the first time that the words "rest for the face of the sole" appear.

After further consideration by the Patent Office the examiner again communicates with the inventor's attorney, under date of January 11, 1876, as follows: "Attention is called to the fact that the finger rest in the above-cited case is stated to be the main feature of the alleged invention. A rest for the same purpose is shown in Tayman's patent, and the other elements claimed in combination have been shown by the references to be old separately; and if the finger rest performs any new function in this instance in combination with the tool and holder here used it should be clearly stated. It is not understood what is meant by the words in the first claim now presented, namely, the rest for the face of the sole; additional amendment is therefore necessary before the case can be further considered."

In response to the letter just quoted the inventor's attorney, under date January 19, 1876, made the following amendments in the case:

84 "1. By inserting immediately after the words 'to aid the workman in holding the edge up to the tool' the words 'and

the face of the sole against the rest which is just below the burnishing part of the tool.'"

"2. By inserting immediately after the words 'the workman presses the edge up against the tool' the words 'and the face of the sole against the surface which projects below the tool.'"

The effect of these last amendments was to make the specification, which originally read as follows, "and a finger rest to aid the workman in holding the edge up to the tool," read "and a finger rest to aid the workman in holding the edge up to the tool and the face of the sole against the rest which is just below the burnishing part of the tool," this change occurring in the second paragraph; and where the fifth paragraph of the original specification read "the workman passes the edge up against the tool and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger rest D, especially when burnishing the corners of the toes," the amendments made it read, in the fourth paragraph, as follows: "The workman passes the edge up against the tool and the face of the sole against the surface which projects below the tool and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger rest D, especially when burnishing the corners of the toes." As C has always throughout this case indicated the burnishing tool, such a tool as was old and well known at and before that time, and as the examiner, in his letters of January 11, 1875, quoted by me, clearly desires to know if the finger rest in this instance performs any new function in combination with the tool and holder here used, and as the amendments made in response to that letter indicate as clearly as words can the front face of the finger rest or part marked D, it is clear to my mind that that is the thing referred to in the patent as the rest for the face of the sole.

BOSTON, *October* 20, 1885.

Direct examination resumed:

Int. 15. Please state whether, in your opinion, the guard or longer lip of a burnishing tool would be, in any different sense, a
85 rest for the face of the sole when employed in the Helms machine than when used in any other machine or by hand; and please state your reasons for such answer as you may give.

Ans. I don't think it possibly could constitute a rest for the face of the sole when used in the Helms machine in any sense different from a similar guard on tools shown in the patent of J. P. Molliere and in the patents of E. T. Ingalls, S. W. Chamberlin, P. F. Gubault, A. C. Andrews, G. C. Hawkins, S. H. Hodges, H. F. Wheeler, and others, all antedating complainants' patent; and as to hand tools the function of the guard is precisely the same. In fact, such tools had been made and used both by hand and in machines, and were common and well known to those skilled in the art of shoemaking many years before the date of complainants' patent. I may state here that I think in all the patents enumerated in this answer the guard or longer lip is an integral part of the burnishing tool. But a great number of machines have been made and used adapted to

burnishing square edges, in which the guard was separate from the rest of the tool and having an adjustment in relation to the rand, lip, and bed to accommodate varying thicknesses of sole edge. This latter class of machines was adapted entirely to the coarser grades of work, the only difference between the tools when made entirely of one piece, as compared with those having an adjustable guard, being that the use of the former was confined to work the thickness of the edges of which approximately corresponded to the tools, while in the latter type, owing to the adjustability of the guard, one iron would extend over a large range of work, but the guard in either case would or could be no more a rest for the face of the sole of the boot or shoe than in the other or when used by hand.

Int. 16. Do you find anything in complainants' patent that to your mind indicates that Helms intended the guard or longer lip of the burnishing tool to serve as "the rest for the face of the sole," as stated in his specification?

Ans. No; I do not. I don't find anything in the specification of Helms' patent in suit that can be fairly twisted into such an indication.

Int. 17. In complainants' patent occurs this sentence: "My machine is extremely simple, and consists of a head or standard carrying a tool-holder, holding a tool for setting or burnishing the
86 odges of the soles of boots and shoes, and a finger rest to aid the workman in holding the edge up to the tool and the face of the sole against the rest, which is just below the burnishing part of the tool." Please state what portion of the burnishing tool you regard as "the burnishing part of the tool."

Ans. In square-edge tools similar to the tool shown in the drawings in complainants' patent, and also in tools adapted to burnish bevel and round edges, no example of which appears in complainants' patent, but which are quite common, in fact, in all tools the burnishing part is the definite or indefinite portion that comes in contact with the trimmed edge to be burnished. For examples, Defendant's Exhibit Hand Tool No. 3 is a square-edge tool adapted to burnish a definite thickness of sole edge, and every portion of the finished surface between the rand lip and the top of the guard may be fairly held to be, and in fact is, the burnishing part of the tool. If the edge to be burnished is intended to be finished with what in the trade is known as a "sunk channel," of which Defendant's Exhibit 6, Burnished Edge, is an example, then every part of the finished surface of Defendant's Exhibit Hand Tool No. 3 is the burnishing part. But if the edge to be burnished is a plain square edge, like Defendant's Exhibit Ashe Example 1, then the burnishing part of hand tool No. 3 would terminate at the corner formed by the junction of the bed and guard. With irons like Defendant's Exhibits Hand Tools Nos. 4 and 5, every part of the finished surface is the burnishing part, the point of contact of such tools with the sole edge being generally indefinite, the contact being less on thin parts and greater on thick parts of the sole edges.

Int. 18. Please examine the model marked Defendant's Exhibit

Gubault and state what elements, if any, you find therein in common with the Helms machine?

Ans. I find a burnishing iron having a rand lip, bed, and guard of the ordinary well-known type and substantially the same as shown in complainants' patent. This tool is adapted and provided with means to be reciprocated while burnishing the edge of a boot or shoe; and I find in combination with it a rest for the face or tread of the sole of the boot or shoe, which rest is adapted to be adjusted in its relation to the burnisher substantially the same as the
87 adjustment of the rest for the face of the sole provided for in the patent of the complainant. The rest for the face of the sole in Defendant's Exhibit Gubault differs from the similar rest in the machine of complainant in not being provided with any suitable hooked or curved surface around which an operator could extend a finger; but instead of such hooked or curved surface, which might be used as a finger rest to steady the hand of an operator while burnishing the edge of a boot or shoe, the long projecting ends of this Gubault rest can be used by an operator to steady his hand while moving a shoe edge against the action of the burnisher. I have seen operators so use these machines at the factory of Stead, Simpson and Nephew, in Leicester, England.

Int. 19. Please examine the tracings now shown you, marked "Defendant's Exhibit Andrews Patent, E. H., sp'c'l exam'r," and state whether they are correct copies of the drawing shown in the official reports of the English patent office accompanying the specification in patent No. 59 of 1874.

Ans. They are correct copies.

(Tracings now put in evidence and marked as above stated.)

Int. 20. Please state whether or not the manuscript now shown you and marked "Defendant's Exhibit Andrews Specification, E. H., spec'l exam'r," is a correct copy of the specification of the Andrews patent referred to in the last preceding question.

Ans. It is. I wrote it myself.

(Manuscript referred to now put in evidence and marked as stated.)

Int. 21. Please state whether or not you find in this Andrews patent a vibrating burnishing tool, and, if so, what elements and characteristics, if any, it has in common with the tool shown in complainants' patent and what similarities or dissimilarities you find in the operations of the tools in the two patents.

Ans. I do find in the Andrews patent a vibrating burnishing tool possessing in its burnishing surface substantially all the features shown in the burnishing tool in complainants' patent. They are similar to each other in so far that in each machine the boot or shoe to be burnished is presented to and held by hand against the vibrating polisher. They are dissimilar in so far as relates to the method of holding the burnishing tool in each machine, the tool in the complainants' machine being rigidly held in its holder and being
88 backed up by a spring, so that it will give or recede to some

extent under the pressure exerted against it in burnishing a boot or shoe sole edge. In the Andrews machine the tool is not backed up by a spring, but is retained in its holder by a screw. These machines are also dissimilar in so far as relates to a rest for the face of the sole of a boot or shoe, the guard in the Andrews machine constituting the sole support by which the shoe could be maintained in its position while being burnished. I omitted to state that, in addition to the well-known features already enumerated as existing in the Andrews burnishing tool, it also has a small wheel mounted above the rand lip, which was intended to leave the impression of an imitation line of stitching around the shoe from ball to ball on the rand or welt. This impression wheel was very early abandoned by Andrews, and the tool was used as shown in the patent with this exception.

Int. 22. Please state whether you find in any of the patents antedating the complainants' a finger hook or support; and, if so, specify the patents and the part adapted to serve as the finger rest.

Ans. I do. I find in patent of J. P. Molliere, No. 13950, December 18, 1855, the part marked "*y*" in the drawings, which is capable of being used as a finger rest or support, and in the patent of N. S. Thompson, No. 50856, November 7, 1865, I find a part marked "F," which is capable of and appears well adapted to be so used. In this Thompson machine the part "F" also acts as a guide or rest for the face or tread of the sole, there not being any guard on the Thompson burnishing iron except the channel guard or rand lip, while in the Molliere machine I find a burnisher, which in the drawings is marked "P," and a detached view of which is shown in section, Fig. 4. This burnisher has a rand lip, bead, bed, and guard, and in both of these machines the rest or guide is capable of adjustment towards or away from the burnishing tools. I also find such a device in the patent of A. C. Cary, No. 129,457, July 16, 1872. In this Cary machine the part is marked "*g*." In this machine the burnishers (there are two of them) have no guard, the part "*g*," taking its place, being used as a guide or rest against which the bottom or tread of the sole is held while the shoe-sole edge is moved along against the action of the burnishers. The necessities of the case in this machine require that

89 something be employed which will enable the workman to present and burnish a sole edge upon it; otherwise, owing to the peculiar method of operation embodied in this machine, it would be difficult, if not impossible, to present and burnish a sole edge upon it. This peculiarity consists in two tools being rotated in opposite directions, and so formed that a part of each will intermittently strike on or about the same point of sole edge, the tendency of which would be to knock the boot or shoe from the hands of the operator; but by the use of the part "*g*" a workman would be enabled to properly present and burnish the edges of boots and shoes. I may here state that, in each of those machines referred to in this answer, the rest or finger support is an oblong, flat piece; but in the patent of B. J. Tayman, No. 136,790, March 11, 1873, I find a piece or part which, in the drawings of said patent, is marked "Q." One end of this piece "Q" is slightly curved, and is indi-

cated in the drawings by a letter "H"; and it is so curved or hooked to enable a workman to grasp it more firmly with the finger, for the purpose of steadying his hand while presenting the boot or shoe sole edge to the action of the finishing tool.

Int. 23. With your experience in the art, do you believe that it would be practical to burnish a sole edge upon the Cary machine, especially the toe portion of the sole edge, unless the operator steadies his hand by grasping the rest and guide plate "*g*"?

Ans. I don't think it would be practical. I don't believe it would be possible. I believe any operator, in burnishing shoes upon the Cary machine, would instinctively grasp the rest "*g*" to steady his hand, especially when finishing the toe portion.

Int. 24. Please examine the exhibit now show- you, marked "Complainants' Exhibit Complainants' Patent Drawing Enlarged," in connection with the exhibit marked "Defendant's Exhibit Complainants' Patent Drawing Enlarged, No. 2, E. H., special exam." (which latter exhibit is now put in evidence), and state whether or not you think said first-named exhibit fairly represents the presentation of a boot or shoe to the Helms machine for the purpose of burnishing the sole edge, and state your reasons for such opinion as you may give.

Ans. No, sir. I do not think that the drawing in the exhibit, "Complainants' Exhibit Complainants' Patent Drawing Enlarged," fairly represents the proper method of presenting a boot or shoe sole edge to the burnisher of a Helms machine. It is not a rep-
90 resentation of any such boot or shoe as I remember to have ever seen. I have never seen a shoe with so much curve or spring as is shown in this exhibit. In the Helms machine the face or tread of the boot or shoe sole should touch the front surface of the finger hook, when properly presented to the iron; and, in my opinion, anything pretending to properly represent the correct presentation of a sole edge to a burnishing iron of a Helms machine, when the face or tread of such sole does not touch the front face of the finger hook, is hardly a fair representation of the method of presenting it. "Defendant's Exhibit Complainants' Patent Drawing Enlarged, No. 2," is a tracing of "Complainants' Exhibit Patent Drawing Enlarged," showing the position of the toes of two shoes in contact with the burnishing iron. One of the shoes, the sole of which I have marked "*b*," shows the sole properly presented to the burnishing iron and touching the front face of the finger hook. The position of this sole marked "*b*" is traced on this exhibit from the sole of the shoe marked "Defendant's Exhibit Ashe Example No. 3." The sole of that portion of the shoe shown in "Complainants' Exhibit Complainants' Patent Drawing Enlarged" I have marked on this exhibit "*a*," and it is shown through the shoe marked "*b*" by dotted lines to its contact with the burnishing tool.

Int. 25. Please state whether the sole edge marked "*b*" in "Defendant's Exhibit Complainants' Patent Drawing Enlarged, No. 1," in so far as regards the angle of the sole edge to the face of the sole, represents a well-known type of edge finish.

Ans. The angle of the sole edge to the face of the sole, as shown

at "*b*" in this exhibit, is common and well known in the trade. The very best shoes made are trimmed and finished at about such an angle. An inspection of the work in any first-class custom shoemaking establishment will verify this statement.

Int. 26. Can you discover any reason whatever for representing the sole edge, in its relation to the finger hook, as it is in "Complainants' Exhibit Complainants' Patent Drawing Enlarged," unless it be to mislead and misrepresent the facts? If you discover any other reason whatever, please state it fully.

Ans. So far as this exhibit relates to the machine shown and described in complainants' patent, and knowing, as I do, both from the testimony of the patentee of that machine and the testimony
91 of an operator who burnished shoes on that machine for years, and in doing which he used the front face of the finger hook as a rest for the tread or face of the shoe sole, and also with my own personal knowledge of the fact that sole edges can be properly burnished when the face or tread of the sole is kept in contact with the front face of the finger rest—I having had shoes burnished in that way—I really can see no other object or motive in showing a shoe in this position, relative to the burnisher and finger hook, except as stated in the question, to mislead and misrepresent the facts.

Int. 27. Please state whether, in so far as you know, it is now the practice to rest the face of the sole against the finger hook when operating burnishing machines.

Ans. It is not. I don't think it has been the practice for several years past to so use them. As operators became expert at the use of the machines they found that they did not require to rest the sole upon the front face of the finger hook. It was also found to interfere with the burnishing of the shank part of the sole edge—the first machines not being used at all for shank-burnishing, but only for burnishing the edges of fore parts. I know of no machines made during the past six or seven years which were adapted or intended to be used in that manner.

Int. 28. Please examine the exhibits now shown you and put in evidence and marked respectively "Defendant's Exhibit Operating Sketch No. 1, E. H., special exam.," and "Defendant's Exhibit Operating Sketch No. 2, E. H., special exam.," and state with what degree of correctness, in your opinion, they represent Defendant's Exhibit Helms Model.

Ans. I think they represent the model correctly, with two minor exceptions, which are that the sketches do not show the crank arm on the shaft as in the model, nor do they show the set-screw for holding in place and adjusting the finger rest. Apart from that, the- represent the model correctly.

Int. 29. Please state whether or not, in your opinion, these exhibit sketches correctly represent the relative positions of the machine, the shoe, and the hands of the operator, as described in your presence by Helms, the inventor and patentee of complainants' machine, and by Van Aernam, the operator thereon, when testifying as witnesses in this suit.

92 Ans. They do.

(Adjourned.)

BOSTON, *October* 21, 1885.

Direct examination resumed:

Int. 30. Please examine the three burnishing irons now shown you and put in evidence and marked, respectively, "Defendant's Exhibit Complainants' Sunk Channel Iron," "Defendant's Exhibit Complainants' Round Edge Iron," and "Defendant's Exhibit Complainants' Bevel Edge Iron," and state, if you know, whether they have been used in burnishing sole edges; and, if so, where, and in what kind of machines.

Ans. They have. The Sunk Channel Exhibit was used on one of complainants' machines at the factory of the Bay State Shoe and Leather Co., at Worcester, Mass., and the other two were used on complainants' machines at the factory of B. F. Spinney & Co., at Lynn, Mass.

Int. 31. What portion of the molded face of these tools, respectively, has been in working contact with the sole edge?

Ans. All that portion of the molded surface of Exhibit Sunk Channel Iron embraced between the extremity of the rand lip and the extremity of the first step on the guard has been in burnishing contact with the sole edge. The appearance of the other two exhibits would indicate that at times the whole of their molded surface was in contact with sole edges for the purpose of burnishing. Such edges being frequently found to vary in thickness, the amount of molded surface of the round edge and bevel edge exhibits that comes in burnishing contact with the sole edges is determined by such variations in thickness. The second step of the guard in Exhibit Sunk Channel Iron is not intended to and never comes in contact with the bottom of the sole.

Cross-examination by J. E. MAYNADIER, Esq., of counsel for complainants:

Cross-int. 32. In your 11th answer you speak of the finger support "Q" in the Tayman patent. Can you not readily see that a finger support when used with a cutter revolving with great rapidity always in the same direction and which lacks a flange projecting over the tread of the sole is widely different in mode of oper-
93 ation and result from the same thing when used with a rapidly vibrating burnishing tool which has a flange projecting over the face or tread of the sole?

Ans. No; I cannot see that it is widely different, seeing that it is placed in each machine for precisely the same purpose, namely, to enable the operator to place a finger upon it for the purpose of steadying the hand. Why the fact of a hook being used for that purpose in a machine using a rapidly revolving cutter or, in the place of that cutter, a rapidly revolving burnisher, with or without a flange, both types of finishing tool being at the date of the Tayman patent equally well known, should make its use any different from what it

would be in another machine using a rapidly reciprocating tool, such tool having a flange or guard upon it extending over the bottom of the sole, I am unable to see.

Cross-int. 33. You don't believe, do you, that there is any hint or suggestion in the Tayman patent or its reissue as to the use of the finger support "Q" with a burnishing tool of any kind?

Ans. I think there is such hint. I think it can be found in the reissue of the Tayman patent; but if there was not any specific reference to its use in combination with a burnishing tool it is shown in the Tayman machine, which contains a burnishing tool, and was designed to trim and burnish sole edges; and as trimming and burnishing are and always have been analogous processes in the finishing of boot and shoe sole edges, I think that I may fairly substitute a burnishing tool for a trimming tool without making any new invention or departing from the machine embodied in the patent to Tayman.

Cross-int. 34. Are you aware that the shaft is vertical in the Tayman machine when operating as a burnisher, and that the finger hook "Q" has its curved working part "*h*" near one end of the shaft, while the burnisher "H" is at the other end of that shaft?

Ans. I am not aware that the shaft is vertical. I am aware of the facts stated in the rest of the question.

Cross-int. 35. Did you overlook the paragraph in the Tayman patent 136,790, on the left-hand column of the second page, describing the change to be made in the swivel "C" and shaft "E" to fit the machine for burnishing?

Ans. I evidently did.

94 Cross-int. 36. How do you justify the change in the shape of the front face of the finger hook in Defendant's Exhibit Helms Model? I mean making it flat below the guard of the tool instead of curved, as shown in the drawings in the Helms patent.

Ans. It is curved as shown in the drawings of the Helms patent. I believe that it was enlarged five to one from the patent drawing, and I believe that its present form is in pretty strict accordance with the patent drawing enlarged to that scale. There is nothing in the patent of Helms to guide any person as to the special size or form of the hook. As a matter of fact hooks have been made by the owners of the Helms patent and used in the Helms machines of various styles and forms. I have seen several of such hooks myself, but have never seen one that complies as closely to the form shown in the patent drawings as the hook in the model referred to. There is no change that I can see to be justified so far as relates to the form of the hook in this model. It certainly was my intention to have it made in strict accordance with the patent drawing, and I think it is so, due allowance being made for its enlarged size.

Cross-int. 37. The hook in Defendant's Exhibit Helms Model is flat for a little more than an inch and a quarter to my eye; will you apply a straight-edge and tell me how long you think the flat part of it is?

Ans. I think the flat part is just one and one-eighth inches. The flat part on the drawings in the patent is seven thirty-seconds of an

inch, which multiplied by five gives one inch and three thirty-seconds, so that the scale of the hook in the model fairly complies with the drawings of the Helms patent.

Cross-int. 38. I have now put the tool back in place, and as I measure the flat part of the finger hook it extends eleven-sixteenths below the lowest part of the guard of the tool. Please tell me what you make that measurement.

Ans. About the same.

Cross-int. 39. It seems to me plain that the drawing "Defendant's Exhibit Complainants' Patent Drawing Enlarged" correctly shows the flat part of the finger hook as it is in the "Defendant's Exhibit Helms Model;" do you agree with me as to this?

95 Ans. I cannot agree as to a great deal with regard to this exhibit drawing. This drawing was not made from the model nor from the patent. I made it from memory entirely, after hearing the testimony of the inventor, Helms, in which he described the manner in which he intended his machine should be used.

Cross-int. 40. Am I right or not, in your opinion?

Ans. I don't think it does.

Cross-int. 41. How long do you make the flat part of the finger rest, as shown in "Defendant's Exhibit Complainants' Patent Drawing Enlarged," and how far do you think that flat part extends below the guard of the burnishing tool?

Ans. I make it about an inch and three-eighths long; and it extends about half an inch below the guard of the tool.

Cross-int. 42. Is it not plain to you that the flat part of the finger hook, as shown in the drawings of the Helms patent, does not extend at all below the guard of the tool?

Ans. As in the drawings of the Helms patent, the straight line of the front surface of the hook (which I suppose is what is meant by the flat part, although the whole of the front surface is flat or nearly so) ends at or near the termination of the guard of the burnishing iron. But the continuation of that front surface for a short distance farther, although curved, is very nearly straight; more so in the view shown in side elevation than it is in the view shown in section; and of course the more it is enlarged the straighter that whole front surface will appear.

Cross-int. 43. Don't you see that the adjusable guard marked "y" and "y'" in Fig. 3 of Molliere's patent is shown as used with heel burnishers only, which have no guard, and not with a fore-part burnisher, shown in Fig. 4, with a rand lip, bead, bed, and guard?

Ans. I can see that very plainly. But the Molliere machine is adapted to burnish heels and fore parts, and contains burnishing irons suitable for each; and the rest or piece "y" and "y'" being shown in the same machine, I naturally suppose it is there, and assume there is just as much license to use it with the fore-part burnishing iron as with the heel burnishing iron.

Cross-int. 44. And yet it is perfectly clear, isn't it, that the parts marked "y" and "y'" would be of no use with fore-part tools, such as shown in Fig. 4 of the Molliere patent?

96 Ans. No; that is not quite so clear. The fair way to look at that, if such a thing were possible, is to go back thirty years, to the date of the Molliere patent, and see it in the light of the state of the art at that time. It is manifestly unfair and directly misleading to form such an opinion with regard to that if such an opinion is based upon the state of the art to-day.

Cross-int. 45. I see the same long flat surface on the front of the finger rest extending well below the guard of the tool in "Defendant's Exhibit Operating Sketch No. 1," and, in view of that fact, please state whether you are willing to testify that the "Defendant's Exhibit Helms Model," "Defendant's Exhibit Complainants' Patent Drawing Enlarged," and "Defendant's Exhibit Operating Sketch No. 1" fairly represent in this respect the Helms machine, as shown in the drawings of his patent, or whether you are willing to confess that you have deliberately, and with full knowledge of what you were about, altered the shape of the finger rest in this respect so as to make the three exhibits in question conform to your theory of this case.

Ans. I have already stated in regard to Defendant's Exhibit Complainants' Patent Drawing Enlarged that I made it from memory only; it may or may not agree with the patent. I don't think it does in so far as relates to the form of the hook shown in exhibit compared with the Helms patent; and it only agrees with the Helms in so far as I intended it should—that is, as showing the proper presentation of a shoe to the burnishing iron as intended by Helms. So far as regards the Exhibit Helms Model the hook in that model is substantially in accordance with the drawings of the patent. The Exhibit Operating Sketch No. 1 is taken from Defendant's Exhibit Helms Model, and is substantially correct in every respect when looked at from the position in which the artist stood when making the sketch. If, in finishing his sketch, the artist shows a longer straight line than would appear from where he stood when making it, it is his work entirely. So far from confessing that I did willfully and with intent to mislead any one in the preparation of the exhibit mentioned, the opposite is strictly true. I have endeavored, in every exhibit that I have provided in this case, to keep honestly and squarely within the scope of complainants' patent; and all the theory of the case which I have rests entirely upon the patent and agrees with the sworn testimony of the patentee, Helms.

97 Cross-int. 46. Are you *are* aware of the singular fact that this Exhibit Operating Sketch No. 1, while intended to show the tread of the sole in contact with the front of the finger rest, shows, in fact, that the tread of the sole is not in contact with the front of the finger rest?

Ans. I am not.

(Noon recess.)

Redirect:

Int. 47. Would it, in your opinion, make any difference whatever in the practical use and operation of the Helms machine in the

manner testified to by him and Vanaernam in this suit whether the front of the finger hook was as crooked as counsel for complainant claims that it is shown in the Helms patent drawings or was as straight as he pretends it to be shown in Defendant's Exhibit Operating Sketch No. 1?

Ans. It would not. The extent of straight surface or of curved surface of the front face of the hook cannot in any way interfere with the proper use of the machine as testified to by Helms and Vanaernam so long as there is means of properly adjusting the front face of the hook in its relation to burnishing iron. So long as the hook can be arranged in a machine in such a way as to comply with the words of the Helms specification, where it says "and a finger rest to aid the workman in holding the edge up to the tool," I don't see how any modification in the form of the hook can interfere with its proper use; and while I deny, as I have heretofore done, that there is any material difference between the finger hook as shown in Defendant's Exhibit Operating Sketches No. 1 and No. 2 and in Defendant's Exhibit Helms Model as compared with the hook shown in the drawings in Helms' patent, I am positive that the hook as shown in the Helms patent drawings will furnish a rest for the face of the sole, and this is proved by Defendant's Exhibit Complainant's Patent Drawing Enlarged, No. 2, where the finger hook and tool are shown, as copied from Complainant's Exhibit Complainant's Patent Drawing Enlarged, with a shoe sole in contact with the finger hook as a rest, the sole edge and form of the tool being of a common and well-known kind, and the shoe so shown being a correct representation of Defendant's Exhibit Ashe Example 3.

ROBERT ASHE.

Attest: EUGENE HUMPHREY,
Special Examiner.

98 *Deposition of Spencer L. Drake.*

Direct examination by T. W. PORTER, Esq., of counsel for defendant:

BOSTON, *Oct.* 19, 1885.

Int. 1. What is your name, age, residence, and occupation?

Ans. Spencer L. Drake; age, 26; Swampscott, Mass.; edge-setter of boots and shoes.

Int. 2. Please state generally the extent of your experience as an edge-setter; where you have worked and how long in all.

Ans. I have worked as an edge-setter since August, 1876; have worked part of the time at B. F. Spinney & Co.'s, at Lynn, and for the American Edge Setter Company as agent and instructor, and at present at I. M. Atwill's, at Lynn.

Int. 3. Please state what kinds of machines you have operated upon in setting boot and shoe edges.

Ans. The Union, American, Hutchinson, Dodge & Fifield, and the Corthell wax-edge setter.

Int. 4. Have you heretofore testified as a witness in any patent suits?

Ans. I have.

Int. 5. With your experience as a practical operator on sole-edge burnishing machines, do you consider it impossible or difficult to burnish a sole edge of a boot or shoe on a machine like the model now shown you and marked "Defendant's Exhibit Helms Model" while holding the face or tread of the sole in contact with the front face of the finger hook, and especially while burnishing the toe portion of the edge?

Ans. I do not.

Int. 6. Please give any reasons you may have for the opinion expressed by you in your last answer.

Ans. I have burnished edges on the Union machine as now constructed, with the hook drawn forward and secured so that the face of the sole rested against the hook.

Int. 7. What was the quality of the result, or, in other words, the finish of the edge produced in the use of the machine in that manner?

Ans. Fully as good as the work performed in the factory at that time.

99 Int. 8. Please state, as near as you can, the degree of pressure with which you held the shoe sole against the face of the hook in burnishing the edges as you have stated, using any exhibit before you, if you choose, to illustrate your answer?

Ans. The pressure was such as to leave a mark of the hook on the face of the sole as shown on the shoes I hold in my hand, which are marked the same as those I burnished, and which I believe to be the same shoes.

(Witness refers to exhibits marked respectively Defendant's Exhibit Ashe Example-1, 2, and 3, in suit No. 1758, The Union Edge Setter Company *vs.* B. F. Spinney *et al.*)

Int. 9. Do you consider that an equal pressure across the sole edge when in contact with the burnishing tool is always essential to perfect work?

Ans. Not necessarily; not always.

Cross-examined by J. E. MAYNADIER, Esq., of counsel for complainant:

Cross-int. 10. Did you testify in the suit against Spinney & Co. for using the American edge-setter? Please look at pages 40 to 44 of the book now shown you before answering.

(Book shown witness is entitled Union Edge Setter Co. against B. F. Spinney *et al.*—pleadings and evidence.)

Ans. I did.

Cross-int. 11. Please look at the two drawings shown to you and state which of them correctly represents the position of the shoe in the general and ordinary use of the Helms machine.

(The drawings shown to witness are marked "Complainants' Exhibit Complainants' Patent Drawing Enlarged" and "Defendant's Exhibit Complainants' Patent Drawing Enlarged.")

(Question objected to. Witness does not assume to have ever used the Helms machine; hence he cannot be assumed to know what is the general and ordinary method of using the Helms machine.)

Ans. I am not an expert in regard to patent drawings, but in looking at the model (referring to Defendant's Exhibit Helms Model) and in comparing the drawings, I think that "Defendant's Exhibit Complainants' Patent Drawing Enlarged" shows more correctly the position in which the shoe is to be held in ordinary and general use.

100

Cross-int. 12. Please look at the two drawings shown you and state which of them correctly represents the position of the shoe in the general and ordinary use of the machines you are familiar with which contain the vibrating burnishing tool and the finger rest?

(Same drawings referred to in last preceding question.)

Ans. Defendant's Exhibit Complainants' Patent Drawing Enlarged.

Cross-int. 13. Do you agree with me that your answers to questions 11 and 12 in this deposition contradict your answers to questions 8, 9, and 23, on pages 41 and 43, of your deposition in the suit against Spinney? Please read those questions and answers before answering.

Ans. I do not.

SPENCER L. DRAKE.

Attest: EUGENE HUMPHREY,
Special Examiner.

Deposition of George Osborne.

Direct examination by T. W. PORTER, Esq., of counsel for defendant:

BOSTON, *Nov.* 11, 1885.

Int. 1. What is your name, age, residence, and occupation?

Ans. George Osborne; age, 55; Brockton, Mass.; shoemaker.

Int. 2. Were you ever in the employ of Warren A. Howard, of Brockton? If so, when, and in what line of business?

Ans. Yes, sir. I was with him eight or nine years. I left him about five years ago. His business was manufacturer of shoes.

Int. 3. What position did you occupy while in Howard's employ as above stated?

Ans. I was foreman of his shop.

Int. 4. While in the employ of Mr. Howard as stated were any of the Union edge-setter machines, so called, used at his factory? And if so, please state, as near as you can, when they were first used there.

101 Ans. There were. They were first used there about nine years ago, as near as I can recollect.

Int. 5. Please examine the model now shown you, marked "Defendant's Exhibit Helms Model, E. H., special examiner," and state whether or not it represents the Union edge-setter machines used at Mr. Howard's factory, as already stated by you, and state such resemblances between the model and machines as you find.

Ans. It does. There was a revolving shaft with a pulley on it—an inside crank moving a sliding head, carrying a tool-holder and tool, as this model does—and it had a finger rest like this in the model?

Int. 6. Please explain, in your own way, the manner of using the machines when they were first employed at Mr. Howard's factory. How was the shoe held and supported and what use was made of the finger hook?

Ans. The edge of the shoe was placed against the tool, and the sole of the shoe against the finger rest.

(Witness illustrates by holding a shoe—"Defendant's Exhibit 6, Burnished Edge"—up to the model, with the edge of the shoe sole against the burnishing tool and the bottom of the sole against the finger rest, and sliding the edge of the fore part back and forth while so held, and by holding the toe portion against the tool, with the bottom against the rest, with his left-hand forefinger around the rest and his thumb against the upper, pressing the shoe up to the tool and rest while turning the shoe with his right hand.)

Int. 7. How long were the machines used at Mr. Howard's in the manner you have just described?

Ans. It might have been four weeks or less. They were not used constantly, owing to the difficulty of doing satisfactory work with them.

Int. 8. What difficulties were met with in securing satisfactory results?

Ans. The principal difficulty was that the face of the finger rest was too far forward for our work. There was no provision for setting it far enough back.

Int. 9. Was the machine changed; and, if so, in what way?

Ans. It was changed, and there was a new hook made, the back part of which was flattened and formed with a long slot to
102 receive a set or thumb screw, which fastened it up under the front part of the machine so it could be adjusted, out and in, to the desired extent.

Int. 10. After the machine was changed by having a new finger hook, slotted to give more adjustment, as you have stated, how was it used, with the sole against the finger rest or free from it?

Ans. Free from it. I omitted to state in the former answer that another difficulty was that the tool had no swiveling motion when the machine was first used.

Int. 11. Who made the changes in the finger hook as you have stated?

Ans. I believe they were made by Mr. Fullerton, the man who

came there and set it up. I told him what change there ought to be and he took it away and did it on my suggestion.

Int. 12. Please state whether you burnished any shoes on this machine yourself when it was first set up; and, if so, for what purpose.

Ans. I did some, for the purpose of showing the operators how to run it and to find out what difficulties there were in it.

Cross-examination by J. E. MAYNADIER, Esq.:

Cross-int. 13. Do you recollect the numbers of on the machines used by Howard?

Ans. No; I do not. They were the first machines made. I think we had No. 2, but I cannot be positive about —.

Cross-int. 14. What makes you think they were the first machines made?

Ans. Because they said there were such machines coming out, and we had one, I presume, as soon as they came out.

Cross-int. 15. What was the practical trouble of having the front of the finger rest too far forward?

Ans. It throwed the edge off the iron or tool. They set out so far that you couldn't hold the edge up to the tool and get the right bevel on it.

Cross-int. 16. Do you mean that the rand corner of the sole was pressed too hard against the iron, and that the tread corner could not be brought up against the iron—by iron I mean burnishing tool?

103 Ans. I mean that this rest, when it stood out so far, would throw the tool or iron onto the upper so as to mark it, and you could not get the right bevel on your edge, either.

Cross-int. 17. Are you a practical operator on the Union edge-setter?

Ans. I used to learn my help to operate it.

Cross-int. 18. But you never followed edge-setting on the Union edge-setter as a business, did you?

Ans. No, sir.

Cross-int. 19. Did you ever set edges as a business with hand tools, or with any machine, as a business?

Ans. I have with hand tools—many years at that—not with machines, more than to learn my help.

Cross-int. 20. Who was the operator that ran the first Union edge-setter at Warren A. Howard's?

Ans. Holmes; we always called him Dell.

Cross-int. 21. Please look at the drawings of the Helms patent and say what difficulty, if any, you think you see in presenting the edge properly to the tool when the finger rest is as far back as shown in those drawings?

Ans. I think it isn't far enough back.

Cross-int. 22. Do you think that the tread of the sole would strike the face of the finger rest in a model built according to those drawings, supposing the shoe were reduced in size so as to be on the same scale as the drawings are?

Ans. I do.

Cross-int. 23. How far do you think the front of the finger rest should be from the guard of the tool in a practical working machine?

Ans. I should want it half an inch, sure.

Cross-int. 24. How far do you think it is in the drawings of the Helms patent, making allowance for the small scale of the drawings?

Ans. Well, I should judge it might be a thirty-second part of an inch.

Cross-int. 25. What was your occupation when you first saw the Union edge-setter?

Ans. I was foreman of Warren Howard's shop.

Cross-int. 26. What do you call a fair day's work on the Union edge-setter?

104 Ans. That depends something upon the quality of the work. The grade of goods we made there we called 12 cases of 24 pairs in case a fair day's work; on women's work they would do more; on heavier work 8 cases would be a day's work.

Cross-int. 27. It was plain to you, wasn't it, when you first thought of it that the edge couldn't be presented properly to the tool if the tread of the sole struck the finger rest?

Ans. Yes.

(Direct resumed:)

Int. 28. The difficulties of properly presenting an edge to the tool, already referred to by you, when the face of the sole rested on the face of the finger rest would vary according to the varying sizes of irons used and thickness of edges to be burnished, would they not?

(Objected to as leading.)

Ans. Yes, sir.

Int. 29. I suppose there is no absolutely fixed limit to sizes of irons and thickness of edges between the very thinnest and the very thickest edges made, is there?

(Same objection.)

Ans. No. A thin edge we use a light iron; a thick edge we use a wide iron.

Int. 30. And yet, with the fact before you that resting the face of the sole on the front face of the finger hook, the owners of the machine, or their agents, acting for them, and you and others in the factory of Mr. Howard, acting with them, tried for some time to use the machine in that way—in fact, did try to so use them until the changed hook was applied to the machines, didn't you?

(Objected to as leading; also as manifestly improper.)

Ans. We did.

GEORGE OSBORNE.

Attest: EUGENE HUMPHREY,
Special Examiner.

105 *Second Deposition of Spencer L. Drake.*

Direct examination by T. W. PORTER, Esq., of counsel for defendant:

BOSTON, *Nov.* 17, 1885.

Int. 1. What is your name, and have you heretofore given a deposition in this suit?

Ans. Spencer L. Drake; I have.

Int. 2. Please examine the shoe now shown you, marked Defendant's Exhibit Drake's Bevel-Edge Shoe, E. H., special examiner, and state whether you have seen the same before; and, if so, where, under what circumstances, and what is the name or designation among the trade of that style of edge?

Ans. I have; at I. M. Attwill's shoe factory, Lynn. I burnished the edge on this shoe, which is called a bevelled edge.

Int. 3. Please answer the same question in relation to the shoe now shown you and marked Defendant's Exhibit Drake's Square-Edge Shoe, E. H., special examiner.

Ans. I have; at I. M. Atwill's shoe factory, Lynn. I burnished the edge of this shoe, which is called a square edge.

(Shoes inquired about now put in evidence, marked as stated, respectively.)

Int. 4. In burnishing a shoe having an edge like that of Defendant's Exhibit Drake's Bevel-Edge Shoe, what portion of the sole is in contact at any time with the burnishing iron?

Ans. All that portion of the sole which has been polished.

Int 5. In burnishing shoes having sole edges like that last inquired about, is it practical and feasible to have any portion of the iron bear upon the bottom or face of the sole, as it is usually termed? And give your reasons for such opinion as you may express.

Ans. A bevel-edge iron or tool is made to polish the rand or lip, bed and bevel; the part which polishes the bevel, which is called the guard, continues the same angle from the bed, therefore, in my opinion, it could not touch the face of the sole.

Int. 6. To more specifically define what you designate as the rand or lip, the bed, and the bevel, as also what you understand as the face of the sole, please state what in this exhibit is the color
106 of the rand or lip, the bed, and the bevel, and what is the color of what you term the face of the sole.

Ans. The rand or lip and bed and bevel are black; the face of the sole is red.

Int. 7. In burnishing irons, as formed to burnish edges like that shown in Defendant's Exhibit Drake's Bevel-Edge Shoe, is there any part of the iron which constitutes a rest for the face of the sole as distinguished from the portion which burnishes?

Ans. No, sir.

Int. 8. Please state whether or not this Exhibit Bevel-Edge Shoe has an edge that is common and well-known to the trade.

Ans. It has.

Int. 9. Please state whether or not you regard Defendant's Exhibit Drake's Square-Edge Shoe as having its edge well or poorly burnished and what facts in the use of edge-burnishing tools its condition indicates or illustrates.

Ans. It is a well-burnished edge. Had I burnished this edge in the way that I burnish square edges it would have left the shoe in such a condition that it could have been sold. But I burnished this edge using the guard of the iron as a rest for the face of the sole with such results that the shoe was damaged so that it is not salable.

Int. 10. Please state what there is in the burnishing that renders the shoe unsalable.

Ans. In burnishing a square edge I use an iron or tool which will fit the heaviest part of the edge. The edge in this exhibit is heavier on the inside of the shoe; consequently I used an iron or tool to fit that side; after polishing that side and toe I find on going around on the other side of the shoe that the edge varies in thickness, which is a common occurrence. Had I been burnishing this shoe in my usual manner I would have drawn the shoe toward the lip or rand guard of the iron or tool, but as I was using the guard as a rest for the face of the sole the lip or rand guard of the iron was pressed against the upper, scarring the upper and causing the damage.

Int. 11. Please state your reasons for using the guard of the iron as a rest for the face of the sole in burnishing the square-edge exhibit referred to in the preceding answer.

107 Ans. To show that it is not feasible nor practical to use the guard as a rest for the face of the sole, as the guard of an iron is not made for that purpose.

Int. 12. Please state whether it is or is not common for shoe soles, as they leave the trimming machine, to vary in thickness in different portions of the fore part.

Ans. It is.

Int. 13. How is this when the sole edges are trimmed with cutters known as the Stevens cutter or with the Busell Co.'s cutter?

Ans. The soles then vary.

Int. 14. When the soles thus vary in thickness which part of the burnishing iron do you guide the sole by when moving the sole along the iron?

Ans. By the lip or rand guard.

Int. 15. Please listen to the reading, by the examiner, of the interrogatories and answers 11, 12, and 13 in your former deposition in this suit, and also examine the answers and interrogatories in the Spinney suit referred to in said interrogatory 13 in this suit, and give such reasons as you may see fit for the answer to said interrogatory 13.

(Interrogatories referred to read by the examiner and those referred to in the Spinney suit examined by the witness.)

(Objected to so far as it calls for an explanation by the witness of Int. 11 in his former deposition in this suit.)

Ans. Interrogatory 8 in the Spinney suit refers to the defendant's machine. Interrogatory 9 in the same suit refers to the way or manner in which an iron or tool is cut as regards the guard or flange—at the rear part of the iron or tool. The reason why I think that Defendant's Exhibit Complainants' Patent Drawing Enlarged shows more correctly the position in which a shoe is held to the iron or tool is that the angle of the shoe shown in Complainants' Exhibit Complainants' Patent Drawing Enlarged, in my opinion, is wrong, and the shoe shown in Defendant's Exhibit Complainants' Patent Drawing Enlarged is nearer right.

Int. 16. Please state whether or not you burnished shoe-sole edges to be used as exhibits in the Spinney suit, and whether in burnishing the same you rested the face of the sole against the finger hook.

Ans. I did burnish edges to be used as exhibits in said suit and rested the face of the sole against the finger hook.

108 Int. 17. Please examine the two exhibits respectively marked Complainants' Exhibit Complainants' Patent Drawing Enlarged, W. A. C., special examiner, and Defendant's Exhibit Complainants' Patent Drawing Enlarged, E. H., special examiner, and state how the same respectively represent the relative positions of the shoe, the burnishing iron, and the hook as they were when you burnished the exhibits for use in the Spinney suit as stated.

(Objected to, that the drawings relate to the Helms machine and the witness does not assume to have even used the Helms machine, and the question is substantially a repetition of Int. 11 of witness's former deposition in this suit, to which objection was then entered.)

Ans. Defendant's Exhibit Complainants' Patent Drawing Enlarged shows the shoe in almost the same position as the shoes were held in burnishing the exhibits used in the Spinney suit as the face of the sole touched the front face of the finger hook. The angle of the shoe in relation to the angle of the iron, in my opinion, is the same as was the angle of the shoe burnished as an exhibit in the Spinney suit. The Complainants' Exhibit Complainants' Patent Drawing Enlarged does not show the face of the sole resting on the finger hook, as was the case when I burnished the Spinney exhibits; neither is the shoe shown at the angle in which the shoe was held when I burnished the Spinney exhibits; therefore defendant's exhibit is nearer right than complainants' exhibit.

Cross-examination by EDWARD S. BEACH, Esq., of counsel for complainants:

Cross-int. 18. With what tool did you burnish Defendant's Exhibit Drake's Bevel-Edge Shoe, and with what tool did you burnish Defendant's Exhibit Drake's Square-Edge Shoe?

Ans. I burnished both with the Union edge-setter tools and on the Union edge-setter machine with such tools as I use every day.

Cross-int. 19. How are the tools which you used in burnishing these two exhibits designated?

Ans. One is called No. 4 bed, without bead, a bevelled-edge tool. The other is No. 11 or 12, square edge, with a bead.

Cross-int. 20. In view of your answer to Int. 8, will you state more specifically how common and how well known and how long
109 has the edge on Defendant's Exhibit Drake's Bevel Edge Shoe been well known?

Ans. In the factory where I now work fully two-thirds of the shoes made are bevelled edges, like said exhibit. I have burnished bevelled edges, more or less, since the fall of 1877.

Cross-int. 21. Was this edge in the exhibit referred to burnished at each and every point of the sole edge, without any rocking of the shoe in order to bring the sole edge in contact with the burnishing surface of the tool?

Ans. It was.

Cross-int. 22. In view of the first part of your answer to Int. 9, will you please explain in what way you ordinarily burnished square edges?

Ans. I use an iron which will fit the heaviest part of the edge. If in going around the shoe I find a portion of the edge which is lighter, making it smaller than the bed of the iron, I draw it gently towards the lip or rand guard for the purposes of making a continuous impression of the bead.

Cross-int. 23. Against what, in thus burnishing a square-edge shoe like the exhibit referred to, do you rest the sole of the shoe?

Ans. Nothing. The guard or flange of the iron is cut at such an angle that when the tool fits the edge it does not touch the face of the sole of the shoe.

Cross-int. 24. How many shoes have you ever burnished using the guard of the burnishing tool as a rest for the face of the sole?

Ans. Two.

Cross-int. 25. Is there any substantial variation in the thickness of shoe soles in the fore part?

Ans. That is according to the quality of the work. On fine shoes great care is taken to have the sole rolled and skived at an even thickness. In regard to a medium quality of work there is not so much care taken, and the stock runs of uneven thickness.

SPENCER L. DRAKE.

Attest: EUGENE HUMPHREY,
Special Examiner.

110 *Second Deposition of Robert Ashe.*

Cross-examination by T. W. PORTER, Esq., of counsel for defendant:

BOSTON, *Nov.* 25, 1885.

Int. 1. What is your name, and have you heretofore testified in this suit?

Ans. Robert Ashe. I have.

Int. 2. Please state what changes, if any, have been made from the machine shown in the Helms patent in the machines now made and sold by the complainant.

Ans. The changes made embrace about everything in the machine. As originally made the operative parts consisted in a revolving shaft having a crank or wrist pin at one end, which pin carried a roll or block; this roll or block moved in a suitable slot in a sliding cross-head, the slot in the cross-head being vertical. By this means a reciprocating movement was imparted to the sliding cross-head, and projecting to the front of the machine from said cross-head was a tool-carrier, marked "B" in the drawings of the Helms patent. This tool-carrier was provided with a recess or hole, the top or upper end of which was smaller than the lower end. This hole or recess was adapted to receive a long shank or stem which formed a part of the rubbing tool. This stem, for the greater portion of its length, was made to fit the small end of the hole or recess, and, when in place in the machine, was backed up by a spiral spring, so that when pressure was exerted against the polishing tool its stem would move slightly up and down in its place. These machines were limited to the use of a single polishing tool—that is, one tool would have to be removed from the machine and another substituted in its place in order to burnish an edge of a different thickness or in order to burnish the fore part and shanks of the same boot or shoe. The machines as now made consist of a revolving shaft, carrying a crank or wrist pin upon one end, and its other operative parts consist in a lever of the third order, pivoted to the rear of the frame back of the driving pulley, and arranged to be vibrated in a horizontal plane parallel with the axis of the driving shaft. In this lever, and near the end of the driving shaft, which carries the crank or wrist pin,
111 is a projection resembling what, in the trade, is usually known as a boss or bearing. This bearing is vertical to the axis of the driving shaft and has fitted to it a circular plug or block. This plug or block has a taper hole or recess in it which fits upon the crank pin, by which means motion is imparted to the lever. The fulcrum of this lever is an eccentric stud, and when any great amount of wear takes place in the taper hole of the plug or block such wear can be taken up by slightly turning the eccentric fulcrum stud and so drawing the lever and its block further onto the crank or wrist pin. To the front of the plug or block and in the lever is a pivot upon which is mounted what is usually called a tool carriage. This carriage fits in a recess in the lever and has a steel lever which might, perhaps, be called a spring, pressing the carriage downwards, and it rests upon a support or stop about midway between its fulcrum and the tool-holder. This tool-holder is a trunnion having two projections extending from it opposite each other; each of these projections is adapted to carry a burnishing tool; and the trunnion with its tools can be revolved around a fixed center, so that when one tool has been used to burnish a fore part of a sole edge it can be swung away and another iron or tool be brought into working position to burnish the shanks. This trunnion is adapted to be automatically locked by a wedge and spring when a burnishing tool is in proper position for use. Another difference between the two machines is that in the first or Helms machine

the finger rest was so placed in its relation to the polishing tool that its front surface was used to rest the face or bottom of the sole upno it while the edge was being burnished; but in the machines as now made by complainant the finger rest is placed at such a distance from the polishing tool that the face or bottom of the sole cannot possibly touch it. I omitted to state that about midway between the tool-holder and the eccentric fulcrum of the lever the frame is provided with a suitable bearing, within which the lever moves. The top service of the lever at this point has fitted across it a cap or plate which keeps it firmly in its horizontal position and which takes all the strain resulting from the pressure exerted upward against the polishing tools, thereby relieving the eccentric fulcrum from any great amount of strain. Another difference I find between the two machines is that while in the machines as now made
112 by the complainant the polishing tools can be put on or taken off the machines almost instantly, they being held in their places by small springs, in the machines of Helms the polishing tool and the hole of its long stem which passes through the tool-holder had to be taken from the machine, or, if the tools were made as shown in the drawings, Figs. 3 and 4, of Helms patent, while the long stem would then be retained in the holder "B," the polishing tool "C" could only be changed or taken from the long stem by loosening a screw, by means of which the tools are held in place.

(Noon recess.)

Int. 3. Please state whether or not Helms' machine produced or led to anything new in the matter of the operator's holding and presenting the shoe to the machine by an upward pressure against the burnishing iron; and please give your reasons for such opinion as you may express, referring to any patents that you may deem pertinent to the inquiry?

Ans. No. I don't think it did lead to anything new in that respect, and I base my reasons for that statement on the fact that I find shoes were similarly presented to the action of a burnishing tool in the patented machines of J. P. Molliere, No. 13950, December 18, 1855, and also of B. Q. Budding, No. 42555, May 3, 1864; also of N. S. Thompson, No. 50856, November 7, 1865; also of P. F. Gubault, No. 879, 1868 (English patent); also of A. C. Andrews, No. 59, 1874 (English patent); also of Charles H. Helms, No. 117,283, July 25, 1871; also of James H. Howard, No. 127,772, June 11, 1872; also of A. C. Carey, No. 129,457, July 16, 1872; also of J. Beasley, No. 135,259, January 28, 1873; also of B. J. Tayman, No. 136,790, March 11, 1873, and others. In the use of all the machines enumerated the boot or shoe was presented and manipulated by hand against the action of the polishing tool, as in the Helms machine, and with some of those machines the presentation of the boot or shoe and pressure exerted against the polishing tool was in an upward direction, precisely as with the Helms machine, while in others of them the presentation and pressure of the edge against the polishing tool was in a horizontal direction.

Int. 4. Please examine the printed copy of Patent Office communication of January 11, 1876, found on page 200 of printed record in suit, this complainant *v.* B. F. Spinney *et al.*, which is also
113 part of the evidence in this suit, and in relation thereto, and particularly the words "and if the finger rest performs any new function in this instance, in combination with the tool and holder here used, it should be clearly stated," and state, in view of the then state of the art, what new function or functions, if any, the finger rest could perform in the Helms machine which it had not already performed in other machines, and give your reasons for such opinion as you may express.

Ans. After carefully reading the letter in question and the other correspondence I can see no other function which the finger rest in the Helms machine could possibly perform, except to rest the face or bottom of the sole of a boot or shoe upon it. It was used as a finger rest in the patented machine of Tayman before referred to, and to which patent the examiner in this letter calls the inventor's attention; and as Helms used it for a finger rest and intended to claim it as such, which claim the Patent Office refused to allow unless it performed some new function in combination with the tool and holder shown in the application of Helms, it is perfectly clear that the only function in addition to a finger rest that it could possibly perform was, as I have already stated, to rest the face or bottom of a boot or shoe sole upon it.

(Adjourned.)

FRIDAY, *Nov.* 27, 1885.

Int. 5. Please describe the points of resemblance or dissimilarity, if any, which you believe to exist between the Exhibit Keith's Machine and Complainants' Machine as shown and described in the Helms patent.

Ans. There is only one point of resemblance that I can find common to both machines, and that consists in a revolving shaft. I have previously explained the construction of the machine shown in the patent of Helms. The machine, Keith Exhibit, possesses the following points of difference from the Helms machine, in that it has no reciprocating cross-head; no tool-holder containing a spring to exert a downward pressure on the burnishing iron; no screw or nut to hold the polishing iron in place; nor has it any finger rest capable of being used as a rest for the face of the sole; and it
114 further differs from the machine of Helms by having a double-throw crank instead of a single crank or wrist pin operated by a revolving shaft, such double-throw crank being adapted to impart differential movements to the burnishing tools, and also in having a compound rock-shaft, or what might be held to be two rock-shafts, mounted and operated on the same axis, from each of which rock-shafts an arm extends upwards, one at each side of the axis of the driving shaft. These arms are connected to the double-throw crank by suitable link connections, while two arms, one from each rock-shaft, extend downwards and more in different planes, simul-

taneously, in opposite directions, adapted to hold and carry polishing irons, such irons being held in their holders by means of springs.

Int. 6. In the former suit of the Union Edge Setter Company *v.* B. F. Spinney *et al.*, the record whereof is in evidence in this suit, please state who was the actual defendant—that is, who actually conducted the defence.

Ans. The American Edge Setter Company, a corporation organized under the laws of the State of Maine.

Int. 7. Did you have any connection with or interest in that corporation? If so, how or what?

Ans. I did have an interest in it and was connected with it. My interest in it was two-fifths of the whole—that is, two-fifths of the entire capital stock. I made the first machine. I worked on subsequent machines. Sold and set up machines, made collections, and looked after the details of the business generally.

Int. 8. Please state what disposition was in fact made of the suit—Union Edge Setter Co. *v.* B. F. Spinney *et al.*

Ans. It was settled by agreement between the Union Edge Setter Company and the president of the American Edge Setter Company.

Int. 9. Please state when that settlement was effected, and the circumstances and terms thereof, so far as you know them.

Ans. The case was argued in May, 1884, and it was settled, I think, in the early part of the following October. It was generally believed that the case was about to be decided on or before the middle of October, and there was an impression in the minds of some people that the decision of the court would be in favor of the American Edge Setter Company. I do know as a fact that the set-
115 & 116 tlement was made very hurriedly when it did take place. As to the precise terms of the settlement, I do not know what they were. I do know that the president of the American Edge Setter Company received from the Union Edge Setter Company, as a consideration of that settlement, a sum of money amounting to several thousands of dollars, and I also know that, notwithstanding the fact that I myself owned two-fifths interest in the American Edge Setter Company, I never received any money out of that settlement, and have always considered that, by what I look upon as collusive action between the president of the American Edge Setter Company and the Union Edge Setter Company, my interest in that matter was sacrificed. I omitted to state that the settlement above referred to included a settlement of another suit also, one that was brought by the American Edge Setter Company upon a patent that it owned against parties in Lynn, which suit was defended by the Union Edge Setter Company.

Int. 10. Please state who propounded the questions in the redirect examination of George Osborne, who lately testified as a witness in this suit.

Ans. I did.

Int. 11. Please state the circumstances which led you to so far act as your own counsel as to propound those questions.

Ans. Defendant's counsel being temporarily absent when the cross-examination of Mr. Osborne was concluded, complainants' counsel

asked me to put any questions that I thought necessary to the witness, to thereby save time, which I proceeded to do; whereupon he objected to the same, as appears by the record, and as the last question was being answered defendant's counsel returned.

Int. 12. Are you an attorney or counsellor at law?

Ans. No; I am neither.

Int. 13. Did the complainants' counsel know you were not when he desired you to ask those questions?

(Objected to because complainants' counsel never desired witness to ask any questions.)

Ans. I think he knew I was not.

(Cross-examination waived. The defendant rests.)

ROBERT ASHE.

Attest: EUGENE HUMPHREY,
Special Examiner.

117 *Evidence for Complainant in Reply.*

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, William A. Copeland, special examiner.

BOSTON, *Dec.* 23, 1885.

Present: J. E. Maynadier, Esq., of counsel for complainant; T. W. Porter, Esq., of counsel for defendant.

Deposition of Warren A. Holmes.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 1. What is your name, age, residence, and occupation?

Ans. Warren A. Holmes; 44; Brockton; edge setter.

Int. 2. Were you employed by Warren A. Howard, of Brockton, in 1875 and 1876?

Ans. Yes, sir; I was.

Int. 3. Did Howard receive an edge-setter about that time? If so, when, as near as you can recollect, and what did you have to do about it?

Ans. He did. Do you want to know when he received it? I should say about the fall of 1875, some time. I couldn't say just the date. I worked on it.

Int. 4. Was there any number on that machine?

Ans. Yes, sir; No. 2.

Int. 5. Please describe how the shoe was held when the sole edge was burnished, and especially what part of the shoe was in contact with the machine.

118 Ans. Well, I don't—I could explain it better if I could hold a shoe. They would take the shoe in both hands firmly, press it hard against the bed of the iron, and—well,

I don't know hardly how to explain it. I could show you by holding a shoe.

Int. 6. Do you know Mr. George Osborne? If so, what was his duty at the time the No. 2 edge-setter was there?

Ans. He was foreman of the shop.

Int. 7. What work did he do on that machine?

Ans. He didn't do any, that I know of.

Int. 8. He has testified that the sole of the shoe was against the finger rest when that machine was used. Is that true or not?

(Objected to as a grossly improper attempt to put a leading question indirectly; that it is never competent in any court for a witness to testify that the statements of a preceding witness are or are not true. That is a question exclusively for the court.)

Ans. I don't think it was. I am sure it wasn't against the finger rest.

Int. 9. How much experience have you had in the use of the Helms machine since 1875?

(Objected to as assuming that of which there is no proof.)

Ans. I have worked on it ever since that time except a month or two at a time, except the first six months there might have been times that I didn't.

Int. 10. Do you present the shoe to the machine now any different from what you did at the start, in the fall of 1875? If so, in what respects?

Ans. Just the same as I did then. I don't know any different way.

Int. 11. What is your opinion as to the possibility of holding the tread of the sole against the finger rest if you bear the edge evenly against the iron?

Ans. Well, I don't think it could be done and burnish the edge properly, with any machine that I ever worked on.

Int. 12. Mr. Osborne also says that the tool had no swiveling motion when the machine was first used. Is that true or not?

(Same objection as to Int. 8.)

Ans. Well, I think it did have a little, although not so much as it does now.

119 Int. 13. Who used the machine before gas was substituted for steam heat?

Ans. I used it mostly—Mr. Fullerton and myself.

Int. 14. Mr. Osborne says that he used it some for the purpose of showing the spectators how to run it and to find out what difficulties there were in it. Is this true or not?

(Same objection as to Int. 8.)

Ans. Well, I don't see how he could show any one when he didn't know anything about it. I never knew him to try to burnish a shoe on it.

Int. 15. When did you first hear that any one asserted that the sole of the shoe ought to touch the finger rest in the Helms machine?

(Objected to as not open upon redirect examination. No one has asserted that it ought to so rest. The only question has been how the machine was first used.)

Ans. I never heard any one say that it ought to.

Int. 16. When did you first hear anything about the sole of the shoe touching the finger rest in the Helms machine?

Ans. I don't know as I ever heard any one say that it ought to without it's what has been talked here this morning. I don't know as any one undertook to do work that way.

Int. 17. How many different Helms machines have you run?

Ans. O, I guess—I should think somewhere in the neighborhood of ten. I never counted them up. Well, eight is what I am sure of.

Int. 18. Please look at this model, Defendant's Exhibit Helms Model, and state how near like it is to the first Helms machine used by you in the fall of 1875.

(Objected to, as it doesn't appear what machine he used in 1875, and if he did use a Helms machine it is competent to first show by the witness what the machine was.)

Ans. Separate from the finger rest here, I don't see any great difference. The finger rest is the main thing that is different.

Int. 19. How does the finger rest in the model differ from the finger rest in the machine first used by you in the fall of 1875?

Ans. It is closer to the guard of the iron and flatter on the face. (Witness refers to the finger rest in the model.)

120 Cross-examination by T. W. PORTER, Esq., of counsel for defendant:

Cross-int. 20. In answer to Int. 9 you state that since 1875, with certain exceptions, you have used the Helms machine. Please explain fully what you understand to be a Helms machine. Is it like the model which you have just been referred to? If not, state how different.

Ans. Well, the first one that I run was similar to this one, but they have made changes since then. The one that they use to-day is different from this model. The Union setter I suppose is what is meant by the Helms. The Union edge-setter is what it always went by.

Cross-int. 21. Your answer does not respond to the question. Please note upon hearing it re-read that it asks you to state the differences, if any, it has between it and the machines you have been using since 1875?

Ans. Well, I said that the first one was similar to this, excepting the finger rest; but the kind I am running to-day is considerable difference in the make-up of the machine. The tool-holder is different, and the brass—instead of this little box in here (resting his finger on the top of the head of the model) there's a round box in

place of this. I don't know as I can explain out the difference all the way through, but the machine at the present time—I say it is different at the present time in most of the parts. I don't know as I have anything more to say on it.

Cross-int. 22. Have you explained as fully as you are capable the differences between the machine which you say you saw in 1875 and the later machines, which you call the Helms machines? If not, please make any further explanations you see fit.

Ans. I have explained all I can. I am a poor hand at explaining.

Cross-int. 23. Please refer to your answer to interrogatory 11, and state if a sole edge was trimmed at such an angle upon its bed that it would correspond with and fit upon the bed of the burnishing tool when the tread of the sole rests upon the face of the finger hook, what difficulty there would be in burnishing such an edge when the face of the sole did rest against the finger hook.

Ans. Well, I don't know. I never burnished a shoe when the sole rested against the face of the finger hook. I should sup-
121 pose—you wouldn't want to rest the sole against the finger hook—I should suppose you would want to rest it against there (pointing to the inner lip of the tool next the finger rest). I shouldn't suppose there would be much effect. I never burnished an edge that way.

Cross-int. 24. Can you give any other or different reason in answer to the last interrogatory? If so, please give it.

Ans. No; I don't know as I can.

Cross-int. 25. In answer to cross-int. 14 you say that he (Osborne) didn't know anything about it (the machine). You never knew him to try to burnish a shoe on it. Do you know whether Osborne could or could not burnish shoes?

Ans. I know that he couldn't. I worked there all the time that he was there and since then and I never see him try to burnish a shoe.

Cross-int. 26. But he was foreman of the factory, was he not?

Ans. Yes, sir.

Cross-int. 27. Do you know anything of his ability or inability to run a burnishing machine, except the fact that you did not see him do it?

Ans. Well, I don't; he might, give him time, if he ever tried; but he didn't do much work.

Cross-int. 27½. The question is repeated and magistrate requested to call the attention of the witness to the fact that the question asks if he knows anything about Osborne's ability or inability to run a machine, except that he didn't see him run it.

Ans. I should have been pretty likely to have known, working there all the time. Of course he might learn, but he never did, to my knowledge.

Cross-int. 28. Please state whether or not you have twice heretofore had conversation with Robert Ashe with reference to the finger hook being used for a rest for the face of the sole.

Ans. I remember of once—I don't know as I have twice—his coming into the shop and asking about the finger rest.

Cross-int. 29. How long ago was this conversation, as you remember?

Ans. Well, I couldn't say. It may have been a year ago. It may have been more or less. I couldn't say.

Cross-int. 30. Please reconsider this matter and state, ac-
122 cording to your best recollection, if you did not have a conversation with Mr. Ashe about the finger hook serving as a rest for the face of the sole about three years ago, and also another conversation to the same purport some three or four months ago or within the present year.

Ans. Well, I know I have had. He has been there twice to the shop, and I had some talk with him about it. He said that Mr. Osborne sent him there knowing me to be (defendant's counsel here says that the question doesn't ask what he said), knowing me to be one of the first men to run the Union edge-setter.

Cross-int. 31. At both of these visits Mr. Ashe conversed with you about the finger rest, did he not?

Ans. Well, I couldn't say as to the last. At the first one, he did. I don't seem to remember as to the last. The last time he come I didn't have much conversation with him, anyway. He didn't seem to be very well pleased with what I said.

Cross-int. 32. Please state whether or not you have, within a few months, had a conversation with George Osborne in relation to the Union machine and the defendant's machine, and also in relation to this suit.

Ans. I have not. I knew nothing about it until they sent for me four weeks ago.

Cross-int. 33. Have you or not had conversation within the past year with Osborne in relation to the Helms machine?

Ans. I don't think I have. I haven't spoken with the man more than once or twice for a year. We might possibly have mentioned it, but nothing of any consequence anyway. I says to him that Mr. Ashe had been to see me or something like that, but nothing more.

Cross-int. 34. Please refer to your answer to Int. 16 in connection with your subsequent answers, and state whether that answer is right or wrong.

Ans. It is right, as near as I can tell you.

Cross-int. 35. You have spoken in one of your answers of the distance between the burnishing iron and the finger hook in the machine you saw in 1875. Please state whether or not if a larger burnishing iron would not have decreased the distance between the burnishing iron and the finger hook.

Ans. It would not. It wouldn't make any difference how large the iron is.

123 Cross-int. 36. What is the size, or about the size, of the model of an iron shown in Defendant's Exhibit Helms Model, speaking in the manner in which they are classified and known to the trade?

Ans. Well, I should think that is 21 or 22 in size—20 to 22; I don't know exactly.

Cross-int. 37. What should you estimate the distance to be by measurement from the rand lip to the guard?

Ans. I think it is three-quarters of an inch or more.

Cross-int. 38. What is the distance from the rand lip to the guard on the irons for the thinnest soles that you burnish?

Ans. Well, I couldn't say just the distance. I don't know what the distance is; I never measured.

Cross-int. 39. This is the model you estimate to be three-quarters of an inch between the lip and the guard, and the number to be 20 to 22. Please state what are the lowest and the highest numbers for burnishing tools, the width of the bed between the lip and guard, as near as you can, of the highest and lowest, and the distance between the lip and guard for the irons of the thinnest soles.

Ans. What do you mean—tools that I use? (Counsel says, state what you know about it.) I might not use the highest. I use from a 4 to a 21. (As to the second part of the question). I couldn't tell. I have nothing to do with the width. (As to the distance between the lip and guard for the irons of the thinnest soles). I should think an eighth of an inch—a little heavier than that (pointing to the iron on the model) for the thickest.

Cross-int. 40. Do you think it would make no difference in regard to the relative positions of the burnishing iron and the hook if the iron in one case was but an eighth of an inch across the bed and the other six-eighths of an inch?

Ans. Well, the guard is what makes the difference. If the guard is cut the same on both irons I don't see that it would make any difference. It would make no difference if the iron is 24 or 10 if the rest is cut the same.

(Noon recess.)

124 Redirect examination by Mr. MAYNADIER, of counsel for complainant:

Int. 41. Please state the substance of what Ashe said to you and you to him about the tread of the sole touching the finger rest.

(Objected to, 1st, because it is not open on redirect examination; and, 2d, that the evident defectiveness of this witness's memory is such that it should not be given any undue latitude in this case.)

Ans. He wanted to know when I first run the machine if I didn't use the finger rest for the face of the roll, or if it wasn't used for a rest for the face of the sole. I told him no; I never used it that way. That's about all it amounted to. It was very short; it wasn't much, anyway.

WARREN A. HOLMES.

Attest: WM. A. COPELAND,
Special Examiner.

Deposition of George A. Fullerton.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 1. What is your name, age, residence, and occupation?

Ans. George A. Fullerton; 37; Boston; manufacture and sale of boot and shoe machinery.

Int. 2. Do you know Charles H. Helms? If so, how long have you known him?

Ans. I do; since 1873.

Int. 3. When did you first know of his machine for setting sole edges? State the circumstances.

Ans. I was at work for Dr. Flagg or C. H. Helms & Co., and in the spring or early summer of 1875 there was a machine came from Poughkeepsie to Dr. Flagg's office, and one evening they asked my opinion of that machine. I had had some three years' experience with edge and heel burnishing, and we thought we could see a germ there for a good machine. We took the machine to Mr. Maloy's factory, 63 Beverly St., belted it up and tried to burnish edges, but with our inexperience had very poor success. Mr. Helms and I worked several days trying to burnish edges, and as we gained
125 in experience and with some changes in the machine we succeeded sufficiently well to warrant us in advising Dr. Flagg to put out the money and build another machine with such changes as we thought best.

Int. 4. When was that second machine completed? I mean the first one you built after you and Helms had fully tested the machine which Helms sent from Poughkeepsie.

Ans. In October, 1875.

Int. 5. What was the relation of the tool and the finger rest in the first machine, the one Helms sent from Poughkeepsie, and what change was found necessary and made in the second machine?

(Objected to as assuming that there was a change, and a necessary change, made in the relations of the finger hook and burnishing tool, and also as leading.)

Ans. Most of the change was made in that original machine before we made another one. Mr. Helms's first finger rest was very close to the lip of the iron; it was very broad, and his iron was perhaps twice as wide as we have them now—I mean crosswise of the iron; not from lip to guard, but the other way. We made several finger rests, smaller all the time; cut off the under part of the machine and put the rest back; made the iron narrower, and in this way we succeeded in doing a little work.

Int. 6. How did the pattern or style of that machine, the first one built at Malloy's, compare with the model, Defendant's Exhibit Helms Model?

Ans. With the exception of the finger rest, it would compare very favorably; it is very much like it.

Int. 7. Was that machine ever numbered? If so, what number was put on it?

Ans. No. 1.

Int. 8. How many were built from the same patterns and just like it in all respects?

Ans. Perhaps 20; I should say there were 20.

Int. 9. What became of that No. 1 machine?

Ans. It was sent to Albany—Thos. Feary & Son.

Int. 10. Did you ever see it after it was set up at Feary & Sons', in Albany?

Ans. I did.

126 Int. 11. Who was running it after you first saw it at Feary & Sons'?

(Objected to as not open on redirect examination.)

Ans. I have no idea of the man's name. It was a young man from the factory.

Int. 12. What became of machine No. 2, and state what you had to do, if anything, with setting it up, and when and where?

Ans. The machine was sent to Warren A. Howard, in Brockton. I, with the engineer of that factory, had it set up, steamed up, belted up, and run it. There was no one expert enough to do good work, or even hardly passable work. Mr. Holmes who testified here this morning was appointed to run the machine, and I suppose for the first week there wasn't one first-class edge set. I could do nothing; he couldn't do much better.

Int. 13. How did these two machines, No. 1 and No. 2, differ, if at all, from each other?

Ans. They were exactly alike.

Int. 14. In those machines, when the edge of the sole was properly pressed up against the tool where would the tread of the sole be in relation to the finger rest?

Ans. The finger rest was always set back far enough to allow his hand between it and the iron, the flat of his hand, and the relation of the finger rest to the iron varied with the thickness of a man's hand, from an inch to an inch and a half.

Int. 15. State whether it was possible in either of those machines, No. 1 and 2, for any part of the sole to touch the finger rest when the edge of the sole was in proper contact with the burnishing tool.

Ans. It was not possible.

Int. 16. In that first machine which Helms brought or sent from Poughkeepsie was there any intent, as far as you could discover from looking at the machine or from what Helms told you, to have the tread of the sole touch the finger rest?

Ans. I think that Mr. Helms, before he had burnished a single edge, expected to touch the finger rest with the bottom of the shoe, but one of the first things we did with the original machine was to move the finger rest back.

Int. 17. How many Helms machines, if any, have you seen or

heard of in which the face of the sole could touch the finger
127 rest when the edge was in contact with the bed of the burnishing tool?

Ans. I have never seen any at all.

Int. 18. Do you recollect any talk with Helms in which he said anything about the face of the sole touching the finger rest?

Ans. The subject never was brought up, to my knowledge.

Int. 19. Do you know why it was that in the first machine, the one brought from Poughkeepsie by Helms, the finger rest was too far forward?

Ans. I don't know why it was too far forward; but the moment we tried to run the machine we discovered where it ought to be, and put it there—back, I mean.

Int. 20. Who made the model which was filed in the Patent Office with the Helms application?

Ans. Mr. J. Q. Newhall.

Int. 21. Have you recently seen that model? If so, where, and state whether you turned the tool in any way; and, if so, how.

(Objected to, as the better evidence is a certified copy of the model itself. The complainant is bound to produce the best evidence, and the rules of practice of the Patent Office provide for producing duplicates of all models.

Complainant's counsel here gives formal notice that a certified duplicate of the model will be put in evidence as soon as it shall be received from the Patent Office.

Counsel for defendant objects to the question or any answer thereto until he is assured that he will have opportunity to cross-examine this witness in connection with such certified models.)

Ans. Either five or six weeks ago last Monday I was at the Patent Office, at Washington, looking at the model, but it was so far in the case and so low down that I couldn't see it closely, so I had the attendant open the case and hand me the model. The model is about half the size of the machine, and there is a space between the finger rest and the back of the tool of over an eighth of an inch, which would bring it, of course, in full size, to over a quarter of an inch. I could turn the tool completely around in whatever position it stood in the socket without touching the finger rest at all.

(Adjourned.)

128 BOSTON, *Dec.* 24, 1885.

Int. 22. Please look at the drawings now shown you, marked Complainant's Exhibit Complainant's Patent Drawing Enlarged and Defendant's Exhibit Complainant's Patent Drawing Enlarged, and state which of them, in your opinion, correctly shows the drawing of the Helms patent.

(Objected to, as there is no indication in the record that this witness possesses any qualification whatever to testify as an expert in relation to mechanical matters or drawings, or any comparison thereof.)

Ans. Complainant's exhibit.

Int. 23. What is the chief difference you find between them?

Ans. The position of the finger rest.

Int. 24. Please compare the shape of the front portions of the finger rest in the two drawings and state any reason which you believe accounts for the change in that shape.

(Same objection, and that the question is utterly indefinite.)

Ans. The position of the finger rest with the tool in complainant's exhibit is such that edges could be burnished, while the position of the finger rest with the tool in the defendant's exhibit is such that it is impossible and impracticable to burnish edges, except as a feat. Why it is in that position I can't tell, but it isn't like anything in the Helms machine, or that ever was in the Helms machine.

Int. 25. Please look at the drawings, Exhibits Operating Sketch No. 1 and No. 2, and state whether they show the same defect as is shown by Defendant's Exhibit Complainant's Patent Drawings Enlarged.

(Same objection as to Int. 23.)

Ans. They do.

Int. 26. And how is that as to Defendant's Exhibit Helms Model?

Ans. The same defect.

Int. 27. By what name is Mr. Holmes, who testified here as a witness, commonly called?

(Objected to. If the witness gives the same name as Mr. Holmes did, it is immaterial. If he gives a different name, it is incompetent to contradict complainant's own witness.)

129 Ans. Dell Holmes.

Int. 28. Mr. George Osborne has testified that the soles of the shoes touched the finger rest when the No. 2 machine was first used at Warren Howard's, at Brockton. Is this true or not?

(Objected to as a grossly improper form for question and not admissible in any court, and which every attorney of even limited experience knows to be improper.)

Ans. It is absolutely not true.

Int. 29. Mr. Van Aernam has testified that he burnished shoes at Feary's shop on the No. 1 Helms machine, always holding the sole against the finger rest. Is that true or not?

(Same objection.)

Ans. It is not true.

Int. 30. When did you see the No. 1 machine in use at the shop of Thomas Feary & Sons, at Albany, and to what extent did you use it, if at all?

Ans. On the 27th day of October, 1875. I probably done the straight side of the shoe, anywhere from ten to twenty pair, myself; I don't know how many. The operator could get around the toe, but I couldn't.

Int. 31. What had been your experience in edge-setting before you saw the machine which Helms brought from Poughkeepsie in the spring or summer of 1875?

Ans. I had experimented with Hodges—S. H. Hodges—on several different styles of edge-setting machines and had invented, with Mr. Maloy, and built a fully organized machine for burnishing edges, and had run it on a great many pairs of shoes.

Int. 32. And how familiar were you at that time with the state of the art of edge-setting?

Ans. I was fully conversant with all the machines in the market and know of none that I couldn't operate.

Int. 33. What was the commercial value of the machines then in the market as compared with hand-burnishing?

(Objected to as having been gone into on direct examination and not open.)

Ans. On the lower grade of work there were machines
130 good enough, but on a fair or medium grade or the higher grades there was none in the market.

Int. 34. What did you believe to be the novelty and probable value of the machine which Helms brought from Poughkeepsie and from which you and he produced the No. 1 and No. 2 machines?

(Objected to as immaterial, indefinite, and out of order.)

Ans. The Helms machine was so different from any machine that I had ever heard of or seen and we did produce such good results that we advised Flagg that it was very valuable, and, further, that he had best put in all the money necessary to put it on the market.

(Answer objected to as not responsive and not called for by the question.)

Int. 35. How many Helms machines have been made and sold since that time?

Ans. Between twelve and thirteen hundred.

Int. 36. And what has been the commercial success of the Helms machine as compared with any other edge-setting machine known to you?

Ans. Probably double more than all others combined.

Int. 37. With what class of work is it mainly used?

Ans. All classes except the cheapest or lowest grades.

Int. 38. What rival machine is there on the market, if any, excepting, of course, the machines like the defendant's and any others, if there are any, which have the reciprocating tool with a guard or rest for the face of the sole and a finger rest combined, as in the Helms patent?

Ans. I don't understand that exactly. Please read it again. Perhaps I can answer it then. (Question re-read.) There are no rivals to the Helms machine. There are rotary machines—two or three descriptions—men's heavy, coarse work and women's cheap work.

Int. 39. What is the very best way of setting edges of boot and shoe soles now known to you, and who is the inventor of it?

(Objected to as the culmination of spread-eagleism.)

Ans. The Union edge-setter, invented by Helms.

Int. 40. Was that machine which Helms brought from Poughkeepsie in the spring or summer of 1875, from which you and he produced machines No. 1 and No. 2, which went to Feary and Warren A. Howard, the first edge-setter which Helms brought to Boston?

131 Ans. It was not; no.

Int. 41. What was the plan of the first machine which Helms brought—that is, how was it designed to work?

(Objected to as immaterial.)

Ans. The machine consisted of a hollow handle—straight, round handle, with a rod running through the handle loosely. One end of the rod was designed to be attached to the end of a flexible tube to be revolved; the other end of the rod—I have forgotten the exact mechanism, but it was attached to a small carriage for the tool iron. The operation was to jack a shoe in the ordinary way; then take the handle with the reciprocating iron at one end and pass it over the shoe. We proved that with the slightest pressure of the iron on the edge the tool would stand still and the handle reciprocate; then we put the handle in a vise. We found that the machine would work all right, but we had no means of holding the shoe unless we went back and jacked the shoe, as in my former machine, with the travelling jack. Helms there saw, I think, what was needed; went back to his home, at Poughkeepsie, and produced the machine with the reciprocating iron and the finger rest.

Int. 42. Spencer L. Drake has said in substance that when sole edges are trimmed with cutters known as the Stevens cutter or the Busell Company's cutter they vary in thickness (Int. 13, p. 107). Are you familiar with the Busell Company's cutters? If so, what is the fact as to the precise uniformity in thickness of the edges produced by those cutters?

Ans. I am familiar with the cutters, and if they are square-edge cutters they would not vary, but if it was a beveled-edge cutter the substance of the sole might vary and still be trimmed with the same cutter.

Int. 43. My question is as to the thickness of the sole edge after it is trimmed, and I want to get at the general and ordinary way of trimming with the Busell Company's cutters, and ask you whether a sole edge when trimmed with a certain cutter having a rand lip and guard varies in thickness or not.

Ans. It does not.

Int. 44. In selling the Helms machines what is the practice in making the irons or burnishing tools to conform to the cutters for trimming the edges?

132 (Objected to as entirely immaterial and incompetent.)

Ans. The irons and the cutters are made to follow each other, with one exception, exactly alike. The iron should be a trifle narrower than the cutter to squeeze the sole a little between the guard and the lip.

Int. 45. Spencer L. Drake testifies in substance that he guides by the rand lip and not by the guard or rest for the face of the sole, and he illustrated that matter by using a burnishing tool with a rand lip and guard, but with the bed a good deal wider than the bed of the sole edge. Please explain as to this.

Ans. I should think that I might find three or four factories where a very hard pegged men's boot was made—hard leather, firm, and the edges trimmed very full, standing out from the upper a good ways to allow for a long lip on the iron—that it might be done, but where the material is the least soft, and especially so when wet by the ink, it is not a possible thing to do except as a feat.

Int. 46. How would the Helms machine compare in practical value with what it now is and has been if the guard or rest for the face of the sole were not on the burnishing tool?

(Objected to as very modest attempt to beg the whole question.)

Ans. There would be no comparison; it would be of no value.

Cross-examination by T. W. PORTER, Esq., of counsel for defendant:

Cross-int. 47. In answer to Int. 3 you state, "We thought we could see a germ there for a good machine." Was that germ something new or old?

Ans. In my opinion it was brand new.

Cross-int. 48. Please state what it was.

Ans. It was the reciprocating tool and the finger rest.

Cross-int. 49. Was or not a reciprocating tool then well known, and, if so, how long had it been known, in burnishing machines?

Ans. The reciprocating tool was well known—I don't know for how long—but never in connection with a finger rest, to my knowledge.

Cross-int. 50. The previous question is repeated, with the request that the witness will confine himself to what is asked and leave the finger rest alone, as he will thereby save time for all concerned.

133 Ans. It has been known to me for three or four years.

Cross-int. 51. The question is repeated, with the suggestion that the witness is not asked what he knew, but merely whether it was well known, and the request that the witness will make his answer responsive to the whole question and answer no more than the question asks.

Ans. I shall answer what I know; not what I guess at or other people know.

Cross-int. 52. Do you not know that at the time referred to in Int. 3 burnishing machines having reciprocating burnishing tools were well known to the trade?

Ans. They were not well known to the trade.

Cross-int. 53. Do you know whether any had been introduced into use at that time; and, if so, what ones?

Ans. There were none except experimentally.

Cross-int. 54. Please answer the last preceding question, and note that it does not ask you the extent of the use of such machines, but what machines.

Ans. There were none.

Cross-int. 55. What machines do you refer to in answer to cross-int. 53?

Ans. I mean there was the Hodges machine and the Carey machine.

Cross-int. 56. Are those all?

Ans. Those are all.

Cross-int. 57. Did you, at the time referred to in Int. 3, regard a finger rest as new in a burnishing machine?

Ans. I did.

Cross-int. 58. Did that first machine that Helms brought here have a finger hook?

Ans. The first machine that he brought here did not; the first machine that we operated did.

Cross-int. 59. At what period, as near as you can state, did Helms bring the machine from Poughkeepsie, as stated in Int. 3? Please give the date as near as you can.

Ans. I should say it was in March or April of 1875.

Cross-int. 60. In Int. 3 you stated that "with some changes
134 in the machine we succeeded sufficiently well to warrant us in advising Flagg," etc. What were those changes? Please state as near as you can.

Ans. Mr. Helms' iron was perhaps an inch and a half wide across, not from lip to guard, but across in the line of its movement. The finger rest was altogether too wide and not of the right shape at all. Perhaps we made from six to ten different irons and finger rests before we were suited.

Cross-int. 61. What other changes did you make besides making divers irons and finger rests?

Ans. Mr. Helms didn't know anything about the speed the machine would run, but with our experience we understood about what speed it should run, and the high rate that we run it necessitated a new box and shaft at least. His machine had no base, and we had to build a very solid table to put it on.

Cross-int. 62. Did you make no other changes in the machine itself except the new irons and finger rests and the shaft and boxes? If any other changes, please state them.

Ans. I think of no others now.

Cross-int. 63. In answer to Int. 6 you state that the machine brought by Helms from Poughkeepsie, "with the exception of the finger rest, would compare very favorably" with the model, Defendant's Exhibit Helms Model. Please state all the particulars in which the finger rest in that machine differed from that in the model.

Ans. If I remember correctly, and I think I do, the finger rest on

the first Helms machine brought from Poughkeepsie was a piece of half-round iron bent in the form of an L and bolted to the under side of the machine at the head. The first thing that we did was to make a new finger rest, and at first we bent them in the form of an L, and afterwards hooked the lower end in something after the shape of the model at the present time.

(Adjourned.)

BOSTON, *Dec.* 26, 1885.

Cross-int. 64. Referring to your answer to Int. 3, you say, in speaking of the machine brought by Helms from Poughkeepsie, that you and Mr. Helms, after belting the machine up at Malloy's
135 factory, worked several days trying to burnish edges, and you also speak of having very poor success at some stage of your efforts, and you speak of your inexperience. Please state whether your "very poor success" was due wholly to your inexperience or in part to any imperfections in the machine.

Ans. Due to both.

Cross-int. 65. Please state fully what were the imperfections in the machine which contributed to your very poor success.

Ans. The stroke of Mr. Helms' machine was too long, the iron was too broad, and, until we got the position of the finger rest back far enough, we couldn't burnish an edge at all. We learned in that first machine the length of the stroke and the width of the iron, which has been copied and carried out to this day.

Cross-int. 66. Please state whether the experiments on that machine at Maloy's shop by you and Mr. Helms were continued until you had overcome the difficulties of burnishing and had so corrected or changed the machine that good results were obtained.

Ans. The results were so far successful that, as before stated, we advised Dr. Flagg to invest his money in the machine. They were not fully overcome in that first machine.

Cross-int. 67. What difficulties or imperfections in the machine then existed which have been since removed?

Ans. One of the serious difficulties was the heating of the iron. We had to hold the gas-burner attached to a rubber tube, and sometimes the iron would be too hot and sometimes not hot enough. We had to take it away when we run the machine. We never overcame that difficulty until we had drilled a hole in the front and top of the finger rest directly back of the iron, put a gas tip in that hole, then drilled another hole in the side to meet the first hole for a gas-pipe connection.

Cross-int. 68. Was this difficulty of heating the only difficulty in the machine itself that remained to be overcome when you completed your experiments at Maloy's on the machine brought from Poughkeepsie? If any other difficulties in the machine then existed, please state them fully.

Ans. There was a serious difficulty in regard to the position of the iron. As the iron was screwed to the face of the tool-
136 holder, of course a very narrow iron would come near the center and a very broad iron would project out from the center of the tool-holder.

Cross-int. 69. Please refer to the drawing in the Helms patent now shown you and explain the meaning of your statement in your last answer where you state that "the iron was screwed to the face of the tool-holder." Was the iron connected to the tool-holder at that time in a manner different from that shown in the patent drawing? If so, please explain more fully how they were screwed together, and, if not, please explain by the drawings to what the quoted words refer.

Ans. The drawing is not the drawing of the first machine Helms brought, but of the improved machines, Nos. 1, 2, and so forth. The first machine had no number. This differs entirely in the mode of fastening the iron and the mode of heating.

Cross-int. 70. Your answer, as you will observe, does not "explain more fully," as was requested, "how the iron and tool-holder were connected together." You will see by your answer to Int. 68 that no one can determine from it how the iron and tool-holder were connected together. That information is now sought. Please give it.

Ans. In the machine that Helms brought from Poughkeepsie the slide marked *f* in the Helms patent is almost identical with the drawings of the patent, and the tool-holder *b* of the patent, instead of being slotted to hold the iron *c*, was flattened on the front side, and on this flat place was screwed the tool *c*.

Cross-int. 71. How long after these experiments at Maloy's upon Poughkeepsie machine before a Helms machine was made and completed ready for use?

Ans. These experiments were in the spring or early summer, as already stated, and in October of the same year the machine was in operation.

Cross-int. 72. Was this second machine numbered; and, if so, what was its number; and, if it was sent out for use, to whom, and to what place was it so sent?

Ans. The machine was No. 1, and sent to Thomas Feary & Sons, Albany, N. Y.

Cross-int. 73. The machine referred to in your two last answers was the first machine made after the experiments upon the Poughkeepsie machine, was it not?

137 Ans. It was.

Cross-int. 74. And you are sure it went to Feary & Sons, at Albany, are you not?

Ans. I am.

Cross-int. 75. Please reconsider your answer to cross-int. 71 and state if you will testify positively that the machine was not sent to Feary & Sons in April instead of October.

Ans. It was not in April. It might have been the latter part of September, but it was the 26th or 27th of October that I saw the machine in operation there.

Cross-int. 76. What year was this?

Ans. 1875.

Cross-int. 77. You were then, have been continuously since, and are now employed by Dr. Flagg, are you not?

Ans. I was then employed by Dr. Flagg, but have not been employed by him nor received a salary from him since 1881.

Cross-int. 78. Have you not been since 1881 interested, directly or indirectly, in the sale of the Union edge-setter, so called?

Ans. I have.

Cross-int. 79. Are you not now so interested?

Ans. I am.

Cross-int. 80. Is there not a record of the date of shipment of each and every machine sold, commencing with the No. 1 machine referred to?

Ans. I should say there was, but at that time there was no company and no regular books—only Dr. Flagg's private books for expenses. I should think there was a record, though.

Cross-int. 81. Will you ascertain if a record of the date of shipment of the machine exists, and if it does exist will you produce it?

Ans. Certainly.

Cross-int. 82. How long after that machine went to Feary & Sons before you saw it operated?

Ans. I base my data upon the fact that the machine was not finished when I made a trip to Rochester, N. Y., and was there between three and four weeks when I received a letter from Dr. Flagg to be sure and stop at Albany on my return and see the machine, for it was then running, and this date was October 26 or 27, 1875.

138 Cross-int. 83. Your last answer does not state, as asked, how long after the machine was sent to Feary & Sons before you saw it there.

Ans. I should say from two to three weeks.

Cross-int. 84. Did you see it in operation; and, if so, what was the degree of success attending it?

Ans. I did see the machine in operation. There was a young man setting fore-part edges. We never had set shank edges at that time. The work was passable.

Cross-int. 85. How would that machine agree with or disagree with the Exhibit Helms Model in the details of its construction?

Ans. It was like, the model with the exception of the finger rest.

Cross-int. 86. How did the finger rest differ from that shown in the model?

Ans. The position. It was much like this except that it was farther back.

Cross-int. 87. Do you know whether Feary & Sons burnished edges upon that machine on shoes that were exhibited at the Centennial, in 1876, at Philadelphia?

Ans. I don't know anything about it.

Cross-int. 88. Did you, as your language seems to imply, take part yourself in the experiments in burnishing at Maloy's factory on the Poughkeepsie machine?

Ans. I did.

Cross-int. 89. What degree of success did you yourself attain in burnishing before the No. 1 machine was made, which was sent to Feary's?

Ans. Better success than any one else attained on the machine.

Cross-int. 90. How long after the No. 1 machine was sent to Feary's before the No. 2 machine was sent to Warren A. Howard's, at Brockton?

Ans. I should judge about a month.

Cross-int. 91. Were the No. 1 and 2 machines alike or unlike; and, if unlike, in what respect did they differ?

Ans. They differed simply in the mode of attaching the iron to the holder. The Feary machine irons were made in Rochester, N. Y., and attached to the face of the holder by a screw, while in the Howard, or No. 2 machine, the irons were made from blanks
139 which we ourselves prepared and attached in the manner shown in the drawings of the patent, figures 3 and 4.

Cross-int. 92. Which was the better method?

Ans. As a matter of convenience, the Howard machine.

Cross-int. 93. What do you regard as the reason why such ill success attended the machine at Howard's when it was set up and started?

Ans. The inexperience of the operator and the teacher.

Cross-int. 94. Had you not, with your experience up to that time, acquired sufficient proficiency to do at least a portion of the work well?

Ans. No, sir.

Cross-int. 95. When was the Helms Patent Office model made, as near as you can state?

Ans. I should say somewhere in October or November, 1875. I can't be accurate about that, for I wasn't here then.

Cross-int. 96. By whom was it made and under whose care and supervision?

Ans. By J. Q. Newhall, 65 Haverhill street, Boston, under the supervision of Helms and Maloy.

Cross-int. 97. Do you think that Patent Office model in its various details correctly represented the No. 1 and No. 2 machines, one of which you sent to Feary & Sons and the other to Howard?

Ans. When we sent the machines out first I should say they were exactly like the model.

Cross-int. 98. Please refer to or hear read Ints. 13 and 14 and their answers and state if in those two machines, Nos. 1 and 2, the finger rest was arranged relatively to the iron, as stated in Ints. 13 and 14.

Ans. I think when they went out from our factory the finger rest was too near the tool-holder, and I know that Howard's—I took the cap marked *c* in the Helms patent, cut it off to allow the finger rest to go back farther. This was reported by me at our factory, and the pattern was changed for all machines after that.

Cross-int. 99. Please explain how it occurred that the finger hook in the Howard machine—the second one sent out—should be made with the finger hook too far to the front and incapable of the necessary adjustment without your cutting off a part of the machine, when in your experiments upon the Poughkeepsie machine,
140 before building either of these, you discovered, as you state, the improper position of the finger hook and readjusted it.

Ans. Heat is a very essential item in burnishing the edge of a

shoe, and the shoes done on the Poughkeepsie machine were light, thin-sole shoes, and we never had to grasp the finger rest very strong, nor very long at a time in our experiments, and we never used a glove. When we came to actual work on heavy work at Brockton we found it necessary to use the very thickest, heavy buck-skin gloves, and required extra room for the accommodation of the glove as well as the hand.

Cross-int. 100. Please state how, in the No. 1 machine sent to Feary & Sons the finger hook was arranged relatively to the iron. Was it the same as the one sent to Brockton or not?

Ans. What work I did at Feary's I did not use a glove, and it was probably about half as far back as the one at Brockton. It was certainly just far enough for my hand to go between it and the bottom of the shoe.

Cross-int. 101. In your reference in your last answer to the Brockton machine do you mean before or after it was changed by setting the finger hook farther back?

Ans. After.

Cross-int. 102. Do you know whether the finger hook in the No. 1 machine at Feary & Sons' was set back or not at any time?

Ans. It is possible that when I saw it there and run it there it was run as it was sent out. They only done their fore parts on very small shoes at that time there. I don't know whether Mr. Helms changed the machine after he set it up or not.

Cross-int. 103. Please look at the last question and note that it does not ask whether Mr. Helms changed the machine, but whether you know that it was changed or not.

Ans. I don't know.

Cross-int. 104. If, as stated by you in answer to Int. 14, "the finger rest in machines No. 1 and No. 2 was always set back far enough to allow his hand between it and the iron, the flat of his hand, and the relation of the finger rest to the iron varied with the thickness of a man's hand, from an inch to an inch and a half"—now,
141 if, as stated by you, the patent model at Washington was like the No. 1 and 2 machine, and that model is, as stated in answer to Int. 21, about half the size of the machine, and has a space of about an eighth of an inch between the finger rest and the iron, which, in the full machine, as you say, would make a space of a quarter of an inch, would there not be, in your judgment, a seeming discrepancy in these three statements? If you think there would not, please say so. If you think there would, please make such explanation as you wish.

Ans. I had nothing to do with the making of the model whatever. It makes a great difference in the kind of work done and in the operator, about the position of the finger rest. The model shows opportunity for adjustment probably as much as was considered necessary by the maker of the model at that time.

Cross-int. 105. How much scope of adjustment do you think the model shows?

Ans. A little over an eighth of an inch.

Cross-int. 106. Have you made all the answer that you can to cross-int. 104? If not, please to now make it.

Ans. I think it fully answered.

Cross-int. 107. Do you think, in view of what you state to be the requisite space between the finger hook and iron and what you say is the possible space between the finger hook and iron in the patent model, and considering its proportion to a full machine as stated by you, that the model correctly represents a practical working machine in that respect?

Ans. I think that Messrs. Newhall, Hélms, and Maloy, none of which had ever burnished an edge on a machine, practically, knew that some adjustment was necessary, but how much they did not know, and showed some in the model, but that they didn't get enough was shown by my having to cut it off at Brockton.

Cross-int. 108. Please answer the preceding interrogatory directly—whether you do or do not think "that the model correctly represents a practical working machine in that respect"—the distance between the finger rest and iron.

Ans. On certain kinds of goods it is exactly right.

(Noon recess.)

142 Cross-int. 109. How does that patent model compare with the machine sent to Howard's—the No. 2? In answering please compare the model and the machine as it was when shipped and after altered as you have testified.

Ans. No. 2 was the same as the Patent Office model when shipped, and remained the same, with the exception of giving more adjustment to the finger rest, and remained the same until the next spring.

Cross-int. 110. How long, as near as you remember, was the No. 2 machine at Howard's before it was altered to permit the necessary adjustment of the finger rest as stated by you?

Ans. It was altered the same day it was set up.

Cross-int. 111. How in the respect of the adjustment of the finger hook would the No. 2 machine compare with the No. 1 that was sent to Feary & Sons?

Ans. They were the same.

Cross-int. 112. Was there any difficulty in running the machine at Howard's, with the exception of lack of adjustment of the finger hook?

Ans. Nothing about the machine; nothing but the inexperience of the operator.

Cross-int. 113. Please explain if the No. 2 machine sent to Howard was corrected in the matter of adjustment of the finger rest the day or the day after it was sent there and you, as stated in answer to Int. 3, had had some three years' experience at edge and heel burnishing before you commenced on the machine, and if, as you state in answer to Int. 3, you gained in experience in using the Poughkeepsie machine so that you "succeeded sufficiently well to warrant you in advising Dr. Flagg to put out the money in building another machine," and you had seen the No. 1 machine operated at

Feary & Sons', how did it happen, as you state in answer to Int. 12, that "for the first week there wasn't one first-class edge set" (meaning at Howard's). "I could do nothing, and he (meaning Holmes) couldn't do much better."

Ans. My experience in edge-setting by machinery had always been with a machine where the tool had been carried over the edge by hand. The Helms machine was exactly opposite to all these, and had to be learned anew. The shoes set at Mr. Maloy's factory by me were women's very light-soled shoes, and at Feary's
143 the shoes set were very small shoes. When we got to Brockton we found men's large, heavy shoes to set, and if we got good quality of edges it took so long to make them on the machine that we couldn't compete with hand labor at all in quantity. It was not until the following March that we got both quality and quantity as we wanted them.

Cross-int. 114. What had the size of the shoe or the thickness of the sole to do with the success or failure of the machine or its practical working or the necessity of setting back the finger hook?

Ans. It had a great deal to do with it. For instance, on a No. 0, No. 1, or No. 2 edge on a small shoe the finger rest would be moved toward the guard of the iron from a half of an inch to an inch from where it would be on a men's edge numbering from a 26 to a 30, and an operator on the former style shoe has really got to learn new to set the latter kind.

Cross-int. 115. How could the statement in the last answer be correct if, as stated by Mr. Holmes in your presence, the witness who preceded you, that the size or thickness of the iron would not vary the distance between it and the finger hook; and, as stated by you in answer to Int. 14, the distance between the iron and the finger hook would vary with the thickness of a man's hand, from an inch to an inch and a half.

Ans. Mr. Holmes was mistaken. The iron is always made so that the center of the bed will be on a line with the center of the spindle that holds it, so that the distance from the center to the back of the guard of a wide iron must of necessity be greater than on a narrow iron.

Cross-int. 116. How, in your judgment, does the size and dimensions of Defendant's Exhibit Helms Model, now before —, compare with the model in the Patent Office seen by you? If different, please state what the difference is.

Ans. The model in the Patent Office is about two-thirds the size of this. The iron on that model is far enough from the finger rest to turn completely around and not strike the front of it at all. With the exception of a screw at the top in place of the peg, it is otherwise like it.

Cross-int. 117. The hook in that model may be adjusted
144 outward any necessary distance, but inwards relatively to the iron but a limited distance. Is this so or not?

Ans. It could come forward from where it now sits toward the iron in the model a little over an eighth of an inch. It couldn't go back any farther than it now is in the model.

Cross-int. 118. What would prevent its going back farther—a shoulder bringing up against the head?

Ans. That is it.

Cross-int. 119. What would prevent its coming out farther—anything but its coming in contact with the iron?

Ans. Nothing.

Cross-int. 120. Then if it had an iron in it now which was an eighth of an inch farther from its center to the back of the guard, there could be no adjustment of the finger hook, could there?

Ans. No.

Cross-int. 121. If Defendant's Exhibit Helms Model had in it a burnishing tool or iron of the smaller sizes would it or not leave as much adjustment of the finger hook as there is in the Patent Office model?

Ans. I should think it would.

Cross-int. 121½. Then, supposing one of the smaller sizes of irons to be in Defendant's Exhibit Helms Model instead of the present one, what difference would you find between the two models except general size, as you have already stated?

Ans. As near as I can remember after five or six weeks, I can't see any.

Cross-int. 122. What was the form of the L-shaped piece which you have spoken of, which Helms had bolted on the Poughkeepsie machine in place of the finger hook? Was it not flat and broad on its face next the iron?

Ans. It was a half-round piece of iron, and the half-round part was on the inside, and the flat part on the outside, next the iron. I should say it was three-quarters of an inch to an inch wide, as near as I can remember.

Cross-int. 123. When was it first suggested to make that piece with a curved hook at the lower end, and who made that suggestion?

Ans. It is impossible for me to say who it was. It was
145 while we were experimenting, and the first machine that we sent out was made that way, with a finger hook. I can give you the reason for it if youwant it, too.

(All after the word experimenting objected to as not responsive and not called for in the question.)

Cross-int. 124. After you concluded to make the finger rest with the curved hook at the bottom why do you think that the front face of it was made in a line parallel with the axis of the burnishing tool, as shown in the patent drawings and in the patent model?

Ans. I don't think there is any reason for it. It was a matter of looks.

Cross-int. 125. Why do you think it has since been changed as in Exhibit Complainant's Machine?

Ans. In the first machines that went out the finger rests were changed to suit the operator's hands in almost every instance. Finally we found what suited the majority and have since used that entirely.

Cross-int. 126. Have you stated the date at which the No. 2 machine was sent to Howard's? And, if so or not, please state it now.

Ans. I think I have answered the question, and said it was October or November, 1875.

Cross-int. 127. How would the hooks in the Nos. 1 and 2 machines compare in form with that shown in Defendant's Exhibit Helms Model? If different in any respect, please explain what the difference was.

Ans. They were smaller; perhaps fully as long, but narrower, and on machines designed to use steam, as the first machines that were put out—steam heat—they were corrugated on the inner side and at the top on the outside. They were always covered with rubber tubing or with leather or some such substance to prevent them from burning a man's glove or hand. The corrugations were made to tie a string around and prevent it from slipping off.

Cross-int. 128. How were those hooks made on their front face in relation to the burnishing iron—the same as shown in Defendant's Exhibit Helms Model or otherwise?

Ans. There were a great many hooks made, and I don't know as there was any great difference in them or from this.

(Adjourned.)

146 BOSTON, *Jan.* 1, 1886.

Cross-int. 129. In answer to Int. 3 you state, "I had had some three years' experience with edge and heel burnishing." Please state what results had at any time during that three years been accomplished by you in the matter of the quality of edge-burnishing which had been effected.

Ans. I had made some very good edges with machinery. I had had good results; that is all.

Cross-int. 130. In answer to the same interrogatory, 3, you state, "We succeeded sufficiently well to warrant us in advising Dr. Flagg to put out the money and build another machine." Now, please state just how well you succeeded at that time in burnishing edges. What was the quality of the finish of the edges that you effected—the best?

Ans. In comparison with the work done at that day by hand and any machine at that time, that I know of, a small portion of our work was superior. A great deal of our practice was on pieces of leather fastened to a piece of board or a last.

Cross-int. 131. When was this small portion of superior work produced? At what time during those experiments—at the beginning or near the close of the experiments?

Ans. As I remember—as I should naturally suppose—the greater experience we got the better work we should produce.

Cross-int. 132. Were these best results attained before or after the changes made in the machine, as stated by you in answer to Int. 5?

Ans. They must have been after the changes were made.

Cross-int. 133. Who, among those experimenting on the Poughkeepsie machine at Maloy's, as stated by you in answer to Int. 3, was the most experienced operator and succeeded in producing the best edges?

Ans. I myself.

Cross-int. 134. Who at that time acted as the general manager of the matter of developing and perfecting the Helms machine, and who for the next year thereafter performed that duty, either as the representative of Dr. Flagg or as the representative of anybody else who had an interest in the machine?

147 Ans. I suppose I made more suggestions than any one else; had more charge of the machines than anybody else.

Cross-int. 135. From your experience in edge-burnishing machines and your business relations with Dr. Flagg were you or not the person actually in charge of developing, making, and introducing the machines from the time the Poughkeepsie machine arrived here until the sale was well established?

Ans. I had nothing to do with the manufacture of the machines. Otherwise I was.

Cross-int. 136. How long after the No. 1 machine was put in operation at Feary & Sons', at Albany, before you saw it in operation there, as stated by you in answer to Ints. 10 and 11?

Ans. In my former answer to some question asked I related the fact that the machine was sent up there, to Feary's, in Albany, some time in the latter part of September or first of October, and this was a fact. I saw it running there on the 27th of October, 1875. I now have learned that the machine was sent back and forth from Albany to Boston several times—perhaps three, perhaps four, perhaps five; I don't know; that the original No. 1 machine was shipped there the first time April 16, 1875, and that the experiments at the time of bringing on the Helms machine were before the dates I have given you before.

Cross-int. 137. From the time the machine was first shipped to Feary & Sons, in April, as you now state, till the 27th of October did you see the machine at any time in operation at Feary & Sons' place?

Ans. No.

Cross-int. 138. Why was it sent back and forth from Feary & Sons' factory several times, as stated by you in answer to cross-int. 136?

Ans. One of our serious difficulties with that machine particularly was in heating the iron with steam heat. If I remember exactly aright, and I think I do, it would leak and bother the operator, wet the edge with steam or water, and that was not overcome in that machine until a new core was made for the pattern and a new head made from the pattern to give more thickness of material.

Cross-int. 139. When next after Oct. 27 did you see that machine running at Feary & Sons', if at all?

148 Ans. I can't tell. I find that I went west, between Boston and Rochester, and so forth, six or eight times in the summer

of 1876. I probably stopped off three or four times to see the machines that were there at that time.

Cross-int. 140. Please state how you find the fact that you went west, between Boston and Rochester, six or eight times, as stated by you in your last answer. Is it from memory or from memoranda kept at that time, or by what means?

Ans. From my private diary kept in 1876.

Cross-int. 141. Have you any recollection of seeing the Helms machines in operation at Feary & Sons' after the visit on Oct. 27?

Ans. Certainly.

Cross-int. 142. Who was operating them?

Ans. I don't know any operator's name.

Cross-int. 143. If the Helms machine first went to Feary & Sons in April and was used more or less, being sent back and forth several times, and you did not see it there till Oct. 27, 1875, and at your subsequent visits you did not know the names of any of the operators, how were you to give the answer which you did to Int. 29, in which you characterized Van Aernam's statements of his use of the Helms machine at Feary & Sons' as "not true"?

Ans. Because it is perfectly certain that edges were never set in the manner that he speaks of on the Helms machine.

Cross-int. 144. How do you know this?

Ans. By being the first expert operator and teaching more people to set edges in all parts of the country than any other one man on all kinds of edges of boots and shoes.

Cross-int. 145. Do you know anything about how the machine was used at Feary & Sons' from April to your visit in October, except the inferences that you draw from your knowledge of the machine? If you have any other knowledge, please now state it.

Ans. I have none.

Cross-int. 146. Do you think, as stated in answer to cross-int. 144, that during the year 1875 you were an expert operator on the Helms machine and capable of teaching all that was necessary to be known on the Helms machine?

Ans. I was not an expert operator in 1875.

149 Cross-int. 147. Do you think others knew more about the Helms machine in 1875 than you did and the best way to operate it?

Ans. No one knew more about the machine. There were two better operators than I was.

Cross-int. 148. In answer to Int. 19 you state that "the moment we tried to run the machine we discovered where it (meaning the finger hook) ought to be and put it there—back, I mean." If that discovery was made as early and suddenly as you there state, and, as you state in answer to Int. 14, the finger rest was always set back far enough to allow his hand between it and the iron, and the thickness of a man's hand is from an inch to an inch and a half, as you there state, how do you account for the fact that with your supervision of this business and Helms' experimenting with you on the Poughkeepsie machine, as you state, that the earlier machines sent out were defective in the matter of space between the finger hook

and iron, and that the patent model and drawings show an entirely different degree of space between the hook and iron?

Ans. While the finger rest would be exactly right for me it might be exactly wrong for another, and I should have to adjust it on different kinds of goods myself for my own use. The Helms model positively shows means of adjustment sufficient, as I should suppose, in the eyes of its maker, to prove the fact. The machines that first went out, after the very first two or three, showed the necessity of wearing gloves, and were changed in their pattern ever afterwards to allow more range of adjustment of the finger rest.

Cross-int. 149. If it were intended to rest the face of the sole against the finger hook a limited adjustment in order to arrange the hook relatively to irons of different thicknesses would be necessary, would it not?

Ans. On the first machine that Helms had, yes; it would.

Cross-int. 150. Take any machine made like Defendant's Exhibit Helms Model, would it not be necessary to adjust the hook back or forth as irons for various thicknesses of sole were used if you wished the front of the hook to be in position to touch the face of the sole when the edge was pressed against the iron?

Ans. I think it would be a matter of utter indifference. A person wouldn't want to put the face of the sole against the front of
150 the finger hook. The adjust- wouldn't count one way or the other. It would make no difference.

Cross-int. 151. The question is repeated, with the request that the examiner will call the witness's attention particularly to the fact that the question does not inquire whether it would or would not be desirable to rest the face of the sole against the finger hook, but asks in relation to certain facts if you wished the sole to so rest against the hook, and so forth.

Ans. I suppose so.

Cross-int. 152. What are the extreme limits in thickness—that is, what is the thickness of the thickest and the thickness of the thinnest iron used in burnishing edges? Give it in inches or fractions of an inch, as the case may be. In answering this give the dimensions as in 1875 and now.

Ans. The standard for the size of the irons made in 1875 and now in Brockton is—each size is—$\frac{1}{48}$ of an inch. We had irons from "0" to—I think the largest size I ever saw was 38 or 40.

Cross-int. 153. Please state what portion of an inch the thickness from front to rear the blank iron would be when a proper size to form No. 0.

Ans. One-half an inch.

Cross-int. 154. What is the thickest blank used?

Ans. One inch and a quarter.

Cross-int. 155. This would leave three-fourths of an inch difference between the largest and smallest blanks, would it not?

Ans. It would.

Cross-int. 156. Is or not that very nearly or exactly the proportionate adjustment shown in the Helms Patent Office model as already described by you?

Ans. No.

Cross-int. 157. If a machine were made like the Helms model and in the proportionate size described by you would the adjustment be more or less than three-quarters of an inch? Please refer to your answer on that point, if you wish.

Ans. It would be less than three-quarters of an inch.

Cross-int. 158. The adjustment required in such cases, if you wish to keep the finger hook always at the same distance from the
151 iron, would be half the variation of the thickness of the iron, would it not, as half the increase or decrease would be in front and half in the rear of the iron, as heretofore stated by you?

Ans. Certainly.

Cross-int. 159. In answer to Int. 16 you state you "think Mr. Helms, before he burnished a single edge, expected to touch the finger rest with the bottom of the shoe," etc. Please state your reasons for so thinking.

Ans. My reasons for so thinking are because I think I have heard that he so testified.

Cross-int. 160. Is that your only reason? If any other, please state them now.

Ans. That is the only reason.

Cross-int. 161. Had you ever seen the Patent Office model filed in connection with the obtaining a patent on the Helms machine before your recent examination of it in the Patent Office?

Ans. I have seen it in the Patent Office five or six times.

Cross-int. 162. Did you see it before it was sent to the Patent Office?

Ans. I don't remember that I ever did.

Cross-int. 163. How was that Poughkeepsie machine arranged in the matter on the finger hook and iron? Could the shoe be burnished on it without the bottom of the sole coming in contact with the finger rest, or not?

Ans. I can't remember whether the sole would touch the finger rest or not.

(Noon recess.)

Cross-int. 164. How does the relation of the finger hook to the iron in the Defendant's Exhibit Helms Model compare with the same parts in the Helms Patent Office model?

Ans. I think in the Patent Office model the finger rest is smaller and that the lower part is curved back more than in this one.

Cross-int. 165. How does this compare with that in the distance, or possible distance, between the finger hook and the iron as both are constructed?

Ans. In the Patent Office model there is a space between the back of the iron and the finger hook of over an eighth of an inch, while in this model there is comparatively no space there.

152 Cross-int. 166. How does the size of the iron relatively to the rest of the model compare in the two models? Is the iron in that model proportionally as thick from lip to guard as in this model?

Ans. It is not.

Cross-int. 167. You have stated, have you not, that the soles burnished at Feary & Sons' were much thinner than those at Howard's?

Ans. Those that were burnished first were light, thin edges.

Cross-int. 168. Was the machine sent to Feary & Sons like or unlike that sent to Howard in the matter of the limit of the distance between the finger hook and any given size of iron when the hook was at its most rearward position?

Ans. They were undoubtedly exactly alike.

Cross-int. 169. What was the thickness of the soles—what number by the scale already stated by you—which they were burnishing at Feary & Sons' when you first went there in October, 1875?

Ans. Judging from what I should think would be the proper edge for such work, anything from No. 2 to No. 8. The exact size, of course, I can't remember that they were using then.

Cross-int. 170. Suppose the Defendant's Exhibit Helms Model to be in all its parts increased, in correct proportion, to a full-sized machine. What, then, would be the number of the iron?

Ans. I think that the model is about the size of the Helms machine now. I should think the iron would be about 33 or 34.

Cross-int. 171. What is the difference in thickness between a No. 2 iron and this, and a No. 8 iron and this (in the model)?

Ans. Supposing this a 34, the difference between it and a No. 2 would be $\frac{32}{48}$ of an inch. I mean from the lip to the guard. The difference in thickness between a No. 8 and this would be $\frac{26}{48}$ of an inch.

Cross-int. 172. Suppose an iron of the size you first saw them using at Feary & Sons was substituted for that now shown in Defendant's Exhibit Helms Model, would or not the space between it and the finger hook, when the latter was at its most rearward position, be nearly or quite equal to that which would exist in a full-sized machine made in all respects in exact proportion to the Helms Patent Office model?

Ans. I should judge that it would.

Cross-int. 173. Then the question of distance between the
153 finger hook and the iron and the correctness or incorrectness of Defendant's Exhibit Helms Model as representing in that respect the Helms Patent Office model is relative, according as the iron is thicker or thinner, is it not?

Ans. I should say it was.

Cross-int. 174. Is it not plain to you that the Patent Office model, with its propositions as stated by you, does not correctly represent a machine such as is described by you in answer to Int. 14, in which you say "the finger rest was always set back far enough to allow his hand between it and the iron," and that "the relation of the finger rest to the iron varied with the thickness of a man's hand, from an inch to an inch and a half?"

Ans. A machine built directly after the Patent Office model could be used on some kinds of shoes as it is; notably those that we were practicing on at that time.

Cross-int. 175. Please observe that the question does not ask whether a machine like the Patent Office model could or not be used, but it asks whether that model, with its proportions as stated by you, correctly represents a machine such as described by you in answer to Int. 14. Please give an answer to the question.

Ans. The model correctly represents the first machines that were built, and shows means of adjustment perfectly; and the machines were not changed materially from that except in those little, minor details of convenience.

Cross-int. 176. Your answer does not meet the question. Will you please state, one way or the other, whether the Helms Patent Office model in its proportions correctly represents the machines described by you in answer to Int. 14?

Ans. In my opinion, it represents it very nicely.

Cross-int. 177. The answer is still unsatisfactory, for the word "nicely" is in such connection ambiguous. Will you please state whether or not the Helms Patent Office model, in its proportions as stated by you, correctly represents the machines described by you in answer to Int. 14?

Ans. In my opinion, the machine described here is very correctly represented by that model.

Cross-int. 178. What do you mean by the word "here"—Int. 14?

Ans. Yes.

154 Cross-int. 179. That model does not correctly represent a full-size machine in which the finger hook could be arranged an inch and a half or even an inch from the iron, does it?

Ans. No.

Cross-int. 180. Well, were the machines 1 and 2 so constructed that the space between the finger hook and iron could be no greater than in a full-size machine made in the true proportions of the Patent Office model?

Ans. They were.

Cross-int. 181. Then the greatest possible space between the finger hook and iron in those machines must have been less than stated by you in answer to Int. 14, must it not?

Ans. It was until we gave it more space.

Cross-int. 182. Was the adjustability of the finger hook in relation to the iron in the No. 1, Feary & Sons', machine ever changed, as intimated in your last answer?

Ans. I have no doubt that it was.

Cross-int. 183. When?

Ans. I had nothing to do with the setting it up or instructing Messrs. Feary & Sons, and couldn't tell anything about that.

Cross-int. 184. Please explain, if you can and will, why it was that the No. 1, Feary & Sons', machine required alteration in the matter of adjustability of the hook when, as you state in answer to Int. 19, "the moment we tried to run the machine we discovered where it, the finger rest, ought to be, and put it there—back, I mean." If you thus early discovered this defect, why was not this defect remedied until after the No. 1 machine was sent to Feary's?

(Objected to because "the machine" is misleading, for it in truth means the Poughkeepsie machine, while in the question it means the No. 1 machine.)

(Counsel for defendant insists that the witness ought to know quite as well as his counsel what machine he was talking about in Int. 19, and the same being before the witness he is requested to read it or hear the examiner read it.)

Ans. I have no means of knowing how to answer that question. I wasn't in the city at the time the machine was finished, and I don't think Mr. Helms was here much, and I presume the machinist didn't think anything about it. He never set an edge himself.

155 Cross-int. 185. It appears from your answer to Int. 3 that you and Mr. Helms worked several days at Maloy's factory trying to burnish edges; from your answer to Int. 16 that you think that Mr. Helms, before he burnished a single edge, expected to touch the finger rest with the bottom of the sole. It appears from your answer to Int. 19 that the moment you tried to run the machine (meaning the Maloy's) you discovered where the finger hook ought to be and put it there—back—while in answer to Int. 18 you say that the subject of the face of the sole touching the finger rest was never brought up between you and Mr. Helms, to your knowledge. Upon reconsideration, are these several statements correct?

Ans. Yes, sir.

Cross-int. 186. What discussion, if any, took place between you and Helms in relation to the matter of changing the position of the finger hook?

Ans. I don't think anything relating to the position of the finger hook more than to any other part of the machine. There were a great many points besides the finger hook to be discussed and learned.

Cross-int. 187. Was there any discussion between you and Helms in relation to the change of the finger hook; and, if so, what? Please note that the question relates to nothing except change in the position of the finger hook.

Ans. There was undoubtedly discussion about change in the finger hook, but I don't remember at this day what was said. I can better remember what was done than what was said.

Cross-int. 188. What was done with or where was the Poughkeepsie machine after the trial thereof by you and Helms and the alterations therein which you say you made?

Ans. I have inquired for that machine lately, and I can't find it. As near as I can learn, some three or four years—it might be two or six—after the experiment this old machine was sent to the foundry and recast—old junk. If it is in existence I don't know it.

Cross-int. 189. How long after those experiments did it remain in Maloy's shop (where No. 1 and No. 2 were made)?

Ans. As near as I can remember, two or three years after that I saw it there.

156 Cross-int. 190. You and the draftsman, the pattern and model maker, and Maloy, the machinist who made Nos. 1 and 2 machines, all had or might have had the full benefit

of that Poughkeepsie machine and the improvements thereon as a guide and reference in getting up and constructing the drawings, patterns, model, and machines respectively for the Patent Office and for use, could you not?

Ans. Certainly.

(Adjourned.)

BOSTON, *Jan.* 2, 1885.

Cross-int. 191. Please examine the sketch marked Defendant's Exhibit Complainant's Patent Drawing Enlarged, No. 2, and state whether there is anything impossible in the construction of a burnishing iron like that shown therein.

Ans. Nothing.

Cross-int. 192. Please answer the same question in relation to the finger hook.

Ans. There is nothing impossible in the construction of a finger hook like that in the drawing.

Cross-int. 193. Is there anything impossible in the construction of a shoe like that shown in this sketch?

Ans. There is not.

Cross-int. 194. Is there anything impossible in assembling these three parts as they are shown in this sketch?

Ans. No.

Cross-int. 195. Do you think there is anything impossible, when the three parts are thus brought together, to grasp the hook and the boot in the manner shown in Defendant's Exhibit Operating Sketch No. 2?

Ans. No.

Cross-int. 196. Will you please make a diagram, to be filed in this case as an exhibit, showing as nearly as you can in outline the form of hooks referred to by you in answer to cross-int. 127?

Ans. I will do so.

(The witness makes a sketch, which is produced and now put in evidence and marked Defendant's Exhibit Fullerton Sketch, W. A. C., sp'l ex'r.)

157 Cross-int. 197. Can you state any reason why the hook shown in Fullerton sketch was corrugated a greater portion of its length on the back side than on its front?

Ans. The hooks were made of brass, so that we could bend them to suit the operator without breaking and were highly polished, and anything we put around them would slip off, because they were tapering, and I filed the first few myself at the factory in that form, found it worked very well, and made them so in the factory afterwards for awhile. The reason for filing them way down low on the inner side of the hook there was no especial reason for, except that a man's finger would press it there and help hold it in the corrugations.

Cross-int. 198. Can you state no other reason why the rear of the hook is corrugated its entire length, practically, while the corruga-

tions upon the front of the hook are all above the end of the guard of the iron?

Ans. If I remember aright the string was only tied around the top corrugations, although I have marked the string down below in the sketch. For the back of a man's hand that rests against the front of the finger rest and the finger that clasps the finger rest we wanted it to be smooth.

Cross-int. 199. If the face of the sole had rested against the front of the finger hook it would have been desirable to have the front of the latter smooth, would it not?

Ans. Certainly.

Cross-int. 200. Please examine the pattern now shown you and state whether or not it is one made by Mr. Newhall from which to make castings for the finger hooks used in the Helms machine during the earlier period of its introduction.

(The pattern referred to is now put in evidence, and marked Defendant's Exhibit Fullerton Finger Hook, W. A. C., sp'l ex'r.)

Ans. It may have been. There were a great many different kinds made, and this may have been one of them. I don't know.

Cross-int. 201. Can you not remember with sufficient distinctness to be able to state whether this pattern correctly represents some of the hooks used with the Helms machine?

Ans. I never remember of seeing this hook before in my life.

Cross-int. 202. Will you state that a hook of that form was
158 not used in connection with the Helms machine during the earlier stages of its introduction or during its experimental stage?

Ans. No. It may be one of a dozen different kinds that I have forgotten about.

Cross-int. 203. Can you explain why, after the experience gained at Howard's, the Helms patent drawings and model show so insufficient a distance between the iron and finger hook?

Ans. Personally I had nothing to do with making the model—Helms Patent Office model. An adjustment was necessary, but I don't suppose that the maker considered any definite amount necessary.

Cross-int. 204. Who did have the care, oversight, or direction of making the Patent Office model and the preparation of the case in connection with the solicitor, Mr. Maynadier? Was it Mr. Helms or some one acting for him; and, if the latter, who did so act for him?

Ans. Not having been in the city at the time, but a very small portion of the time, I know nothing further about it except that Mr. Newhall made the model.

Cross-int. 205. In view of the fact that it appears on page 198, printed record in suit, this complainant *vs.* Spinney *et al.*, that the application for the Helms patent was sworn to in Dutchess county, N. Y., and that Helms was there at that time, do you know or believe that Newhall, the maker of the patent model, had any guide

therefor except the machines as they were being made at Maloy's? If you think he had any other guide please state what it was.

Ans. Only the conversation with Mr. Maloy, and possibly some with Mr. Helms.

Cross-int. 206. In the Patent Office model the range or limit of adjustment of the finger hook is such that with the smallest iron in the holder the hook can be brought forward to the position shown in Defendant's Exhibit Complainant's Patent Drawing Enlarged, No. 2—that is, so that the face of the sole could rest against the finger hook. Is this so?

Ans. I wouldn't like to say that it could or could not be brought forward to touch the sole. I didn't adjust it all.

Cross-int. 207. What is your opinion, based upon your recent examination of that model?

159 Ans. I should judge that it might be brought forward far enough to hit the back of the iron; but, in the position of the iron and the finger hook at that time, I never have seen or heard of an edge being trimmed that in burnishing would touch the finger rest.

Cross-int. 208. What "time" do you refer to in your last answer?

Ans. I mean when the finger rest was brought forward to touch the iron.

Cross-int. 209. You examined that model at the Patent Office mainly with reference to the relative positions of the finger hook and iron, did you not?

Ans. Certainly.

Cross-int. 210. If the model corresponds with the patent drawings, there would be abundant adjustment to bring the face of the finger hook into the same relation with the iron that is shown in Defendant's Exhibit Complainant's Patent Drawing Enlarged, No. 2, would there not?

Ans. I should judge so.

Cross-int. 211. With no specific description in the specification of the Helms patent of the size, form, or proportions of the hook, and only the side views in the drawings, do you or not think that the hook shown in Defendant's Exhibit Helms Model is a fair representation of the hook shown in the drawings? If not, please specify concisely wherein it is not a fair representation.

Ans. I think that in the model the straight face in the front of the finger rest is longer by considerable in this model than in the Patent Office model or in the drawings, and is not curved back as much as either in the drawings or the Patent Office model at the bottom of the hook.

Cross-int. 212. Do you regard the matter of the curving back of the bottom of the hook as at all material in the practicality of the machine?

Ans. Certainly.

Cross-int. 213. How is it so?

Ans. Because a man cannot put his hand in between the bottom of the shoe and the hook unless the hook is carried back far enough for him to do so.

Cross-int. 214. That would depend upon how far he had his hands below the iron, would it not?

160 Ans. His hand is always below the iron, although I have stated in another place that he put his hand between the iron and the finger rest. What I meant and what my intention was, that the hand was between the bottom of the shoe and the finger res

Cross-int. 215. But with a curved hook the farther the operator's hands are below the irons the greater the room for them between the face of the sole and the finger hook, is there not?

Ans. If the finger rest is curved back.

Cross-int. 216. Referring to your answer to cross-int. 211, please state if the iron shown in Defendant's Exhibit Helms Model from the lower end of the guard to the shoulder is not shorter in proportion than that shown in Helms Patent Office drawings, making such measurements as you wish with the measuring rule now before you.

Ans. I don't know the scale of the drawing, but I should think the iron in the model was shorter than the iron in the drawings, in proportion.

Cross-int. 217. Is not the burnishing iron in the Defendant's Exhibit Helms Model arranged higher up in relation to the hook than in the patent drawings?

Ans. It is a very little.

Cross-int. 218. And both these conditions tend to give a greater apparent length to the flat portion of the front of the hook, do they not?

Ans. They do, but the hook one inch below the bottom of the guard of the iron is surely much farther forward in proportion with the drawing of the patent or with the Patent Office model.

Cross-int. 219. But both the patent drawing and the Patent Office model show abundant means whereby the finger hook may be brought forward against the back side of the burnishing iron, do they not?

Ans. Yes.

Cross-int. 220. And if an iron of sufficient size was placed in the Patent Office model the face of the hook would be close to the back side of the burnishing iron, would it not?

Ans. Certainly.

Cross-int. 221. Will you please explain the method which you employed in burnishing the toe part of a boot or shoe upon the first Helms machine, using Defendant's Exhibit Helms Model and

161 the boot marked Defendant's Exhibit 6, Burnished Edge, so that the examiner may take down the method explained by you and the movements made by you in such illustration?

Ans. I can't do it, for the reason that we never burnished a toe acceptably on the first Helms machine; at least I never did.

Cross-int. 222. Did any one, to your knowledge? If so, who? I mean the Poughkeepsie machine.

Ans. No one, to my knowledge.

Cross-int. 223. Then your recommendation to Flagg, in the matter of interesting himself further in Helms' invention, was based upon

your failure and not upon your success in experimenting upon the Poughkeepsie machine. Is this so? If not, why not?

Ans. Why, no; certainly not. We thought we could see a little farther than the Poughkeepsie machine, and our success since has proved that our judgment was correct.

Cross-int. 224. What was there in or about that machine that prevented your doing a toe acceptably on it during the several days' trial, as stated in answer to Int. 3?

Ans. On general principles the construction of the machine was entirely defective, and our experience.

(The words "and our experience" are objected to as most obviously uncalled for by the question.)

Cross-int. 225. Please state concisely what constituted the "entirely defective" "construction" of the machine, as stated by you in your last answer. Give the specific defects, if any, which prevented your burnishing a toe "acceptably."

Ans. I don't know that there were any particular defects about burnishing a toe acceptably more than any other parts, so far as the machine was concerned.

Cross-int. 226. Well, what were the defects in the machine itself which prevented your reaching good results in burnishing sole edges? Please specify what the defects were.

Ans. The defects of the machine were a good many, but I don't think that was the principal trouble, because I think, as a feat, if the machine were brought now that we could burnish an edge with it. The mechanical defects of the machine were like most first machines built in the country, not well proportioned and made; it had
162 no base except what we made of a bench; the stroke of the iron had to be changed by making new shafts a great many times, and it was generally a pretty poor affair.

Cross-int. 227. Referring to cross-int. 221, and leaving out the question raised in your answer as to the acceptability of the work accomplished on the first Helms machine, will you explain the method which you employed in burnishing boot or shoe sole edges upon the Poughkeepsie machine during your experiments, as stated in answer to Int. 3, illustrating, by means of Defendant's Exhibit Helms Model and the boot marked Defendant's Exhibit 6, Burnished Edge, so that the examiner may note down the method explained and illustrated by you and the various movements made by you in such illustration?

Ans. It is impossible for me to do so.

Cross-int. 228. Please state whether or not one of the actual difficulties encountered with the No. 2 Helms machine at Howard's, in Brockton, was in the attempt to use the machine without a swiveling motion in the burnishing iron.

Ans. I don't remember that trouble.

Cross-int. 229. Do you know of any attempts, after the No. 1 machine was sent to Feary & Sons, to run the Helms machine without a swiveling motion in the burnishing iron?

Ans. I myself never made that attempt, and I don't know of any.

Cross-int. 230. Do you know of any failures in the machine, after No. 1 was sent out, by reason of attempting to use it with a non-swiveling burnishing iron?

Ans. I do not.

Cross-int. 231. You were in the employ of Dr. Flagg (who represented the interest in the Helms machine) during all the time it was at Howard's, were you not?

Ans. As far as I know, it is there yet, and I haven't been in his employ for quite awhile.

Cross-int. 232. Were you not in his employ during all the experimental trials of the No. 2 machine at Howard's?

Ans. Yes.

Cross-int. 233. How long after No. 1 machine was sent to Feary & Sons before No. 2 machine was sent to Howard's?

Ans. The No. 1 machine was sent some time in April, and I think the machine went to Howard in November, but I am not positive.

163 Cross-int. 234. You have spoken, in answer to direct interrogations, of the success and superiority of the Helms machine. With what machines had you "had some three years' experience," as stated by you in answer to Int. 3? Please designate them.

Ans. Hodges, Fullerton & Maloy's and the various heel-burnishing machines; particularly those.

Cross-int. 235. Were those machines successful in their results or were those three years spent in unsuccessful experiments?

Ans. The Hodges machine was successful for awhile. I think about a hundred of them were built. The Fullerton & Maloy machine was never on the market. There was never but one built.

Cross-int. 236. Rotary burnishing machines have continued in common use and are still in common use, are they not?

Ans. They are.

Cross-int. 237. For some years past and now the American edge-setter, a reciprocating machine, has been used, has it not?

Ans. To a limited extent.

Cross-int. 238. Please look at the copy of the patent drawing now shown you in U. S. patent No. 13950, to J. P. Molliere, Dec. 18, 1855, and state whether the parts therein marked *y y'* are like or unlike the finger hook or rest in the Poughkeepsie machine when sent to Boston. If unlike, please state what the dissimilarity was.

Ans. As far as this drawing shows, it is very like the Helms Poughkeepsie machine, with the exception that these are turned just square, while the Helms finger rest was bent with a round corner at the angle.

Cross-int. 239. In so far as the use of the hook in the Poughkeepsie machine is concerned it was immaterial whether the angle was round or square, was it not?

Ans. I should say so.

(Noon recess.)

Redirect examination by Mr. MAYNADIER:

Int. 240. In view of certain corrections as to dates, please state again when it was that Helms brought the first edge-burnishing machine to Boston from Poughkeepsie.

Ans. It was in the winter of 1874–'5.

164 Int. 241. And when were the first machines of the No. 1 and No. 2 pattern made?

Ans. No. 1 machine was made in the spring of 1875 and No. 2 was made in the summer of 1875, late in the summer or early in the fall.

Int. 242. How many machines did Thomas Feary & Sons have prior to December 1, 1875, and how many did Warren A. Howard, of Brockton, have prior to that date? State how certain you are and how you know.

Ans. I know by reference to the order book that Thomas Feary & Sons had three and Warren A. Howard, of Brockton, had four.

Int. 243. What were the numbers of the three that Feary & Sons had and the numbers of those that Howard had?

Ans. The numbers of Feary's were 1, 7, and 8; the numbers of Howard's were 2, 3, 4, and 5.

Int. 244. Who had Nos. 6, 9, and 10, and when?

Ans. Under date of December 10 No. 6 machine was at C. A. Coffin & Co., Lynn, Mass.; No. 9 at W. E. Prichard & Co., Marblehead; No. 10 at the Stoughton Boot & Shoe Co., Stoughton.

Int. 245. Do you know how long No. 6 remained at Coffin's and where it went if it left Coffin's, and when?

Ans. It may have been there from three to six months. Under date of July 15, 1876, there is an entry where it was sent to Leonard & Dodge, Albany, N. Y., July 17.

Int. 246. Do you know what number was the first in which the front of the piece marked *c* in the patent was changed in the casting so as to make it shorter?

(Counsel for defendant supposed, in view of the form of redirect int. 240, that the only object of counsel for complainant was to correct errors in dates already testified to by the witness as he had done in cross-examination in regard to certain dates and not, under the caption of "certain corrections as to dates," to introduce entirely new matter; and he also supposed that the order book from which witness has been reading would be put in evidence. He therefore objects to all the preceding testimony in redirect examination. The question is objected to, as witness has already testified in substance and fact that the No. 1 machine was not so changed

165 and that No. 2 was; it is not now competent for the witness to contradict himself. If he wishes to state that he was in error in his statement about Howard's machine being the one first so changed, then the form of question should be varied in that respect and to elicit that form of answer.)

Ans. No; I do not.

Int. 247. In burnishing around the toe of a shoe, man's size, please

state where the fingers of the upper hand are with relation to the finger rest and the face of the sole.

(Objected to as grossly improper, first, because the question is not confined to any period of the art nor any machine, known or unknown; second, if it is confined to the Helms machine or any similar machine it is positively certain from this witness's own testimony in such behalf *in* that he is incompetent to testify, for, while claiming to be a first-class expert, there is no proof that he ever successfully burnished a shoe on the Helms machine, but, on the contrary, he testified that he did not succeed in burnishing a shoe at Maloy's shop with the Poughkeepsie machine in the early experiments; that he could not burnish a shoe when visiting Feary & Sons' shop in the summer of 1875, nor could he burnish a shoe after a week's trial at Warren A. Howard's, which closes his account of his experience as burnisher.)

Ans. The forefinger of the upper hand clasps the finger rest, while the other three fingers, and sometime including the knuckles, are between the tread of the shoe and the face of the finger rest.

Int. 248. And where is the second finger in relation to the guard of the tool or the extreme lower end of the guard?

(Same objection.)

Ans. Just below the guard.

Int. 249. Suppose the finger rest shown in Defendant's Exhibit Complainant's Patent Drawing Enlarged and Defendant's Exhibit Complainant's Patent Drawing Enlarged, No. 2, were moved back, say, a sixty-fourth of an inch, how would that affect the proper presenting of the edge to the tool, supposing, of course, that the tread of the sole was in contact with the finger rest?

Ans. It would not finish or burnish the upper or rand corner of the sole?

Int. 250. Now, suppose the finger rest in those two drawings were moved forward, say, one sixty-fourth of an inch, and answer the same question.

166 Ans. It would not finish or burnish the outer or tread edge corner of the shoe.

Int. 251. In Exhibit Operating Sketch No. 1 a large size shoe is shown, and the tool is shown as operating near the shank. Where should the fingers of the operator's hands be when the iron is burnishing that part of the edge of such a shoe?

(Same objection as to Int. 247.)

Ans. The thumb of the right hand will lie on the upper of the shoe across the toe and lengthwise with the shoe, the forefinger will be placed on the bottom lengthwise with the shoe, the second finger will be across the lower edge of the shoe, and the third and fourth fingers will be around the lower corner of the toe of the shoe. The left hand will be like that shown in the drawing.

Int. 252. In what cases, if any, is the forefinger in contact with

the finger rest when the iron is in contact with the fore-part edge between the toe and the shank?

(Same objection.)

Ans. Only in the very smallest kind of shoes, where the edge is very light, and the distance from the ball to the corner of the toe would not be over an inch and a half or two inches.

Int. 253. What is that part marked *y y'* in the Molliere patent, and how does it compare with the part marked *c* in the Chamberlain patent, No. 32859, and the part marked *f* in the Thompson patent, No. 50856?

Ans. In each of the three machines the parts mentioned are for the same purpose, and varies in difference in the Molliere and Chamberlain patent, in that one is a revolving guard and the other a stationary guard for the revolving irons.

Int. 254. Do the books of the Union Edge Setter Co. and their predecessors enable you to state how long before December 1, 1875, Feary & Sons had machines 1, 7, and 8 and Howard had machines 2, 3, 4, and 5?

(Objection to the use of the book for the purpose of testifying is repeated.)

Ans. No.

(Counsel for complainant states that all the books referred to are and have been throughout the examination, ever since they
167 were first produced, subject to the inspection of defendant's counsel, but they are not put in evidence, because they are used simply to refresh the recollection of the witness.

Counsel for defendant states that the foregoing statement of counsel for complainant is in fact wrong, because counsel for defendant had no right to examine or use in any way the books of complainant, and the foregoing statement is the first intimation that such use would be permitted. Had it been tendered in time counsel for defendant would have availed himself of it.

The attention of defendant's counsel is called to cross-ints. 80 and 81.

Defendant's counsel is well aware of cross-ints. 80 and 81 and the purport thereof, which was simply in relation to the date of the shipment of the No. 1 machine to Feary & Sons, as defendant believed that the witness had made a mistake in his testimony, which proved to be so. The inquiry and the use of the books in that connection related only to the shipment of the machine to Feary & Sons, while counsel for complainant in his redirect examination attempts to use the books to prove matter not open upon the redirect and to prove shipments never inquired about by the defendant.)

Recross-examination by T. W. PORTER, Esq., of counsel for defendant:

Cross-int. 255. Are any of the entries testified about by you on your redirect examination in your handwriting?

Ans. No.

Cross-int. 256. Do you know anything about the matter that is therein contained except that it is in the book?

Ans. No; not positively; that is where I got my information.

Cross-int. 257. Can you now, after having examined the book, answer correctly without reference to it the several interrogatories propounded to you by the complainant in relation to the matter therein contained?

Ans. Very nearly. I might not place each number in the right place.

Cross-int. 258. Can you give the date of the shipments?

Ans. No.

168 Cross-int. 259. In your answer to Int. 247 to what period in the use of the Helms machine do you refer in giving your description of the way in which it was used?

Ans. From the spring of 1876 and all the time that I used the machine or taught operators.

Cross-int. 260. Does the answer to Int. 247 refer to the time when the Poughkeepsie machine was first brought to Boston up to the spring of 1876?

Ans. It means when I first began to practically run the machine myself, in the winter of 1875–'6.

Cross-int. 261. Please state whether from the time the Poughkeepsie machine arrived in Boston, in the spring or early summer of 1875, as stated by you, up to the spring of 1876 the Helms machine was or not used in the manner described by you in answer to Int. 247.

Ans. I should say that there was very little difference in one operator and another in the use of that machine during that time or any time.

Cross-int. 262. How did you yourself use the machine from the summer of 1875 to the spring of 1876—in the manner described by you in answer to Int. 247 or not?

Ans. I don't know how I used it that time myself; I had to teach myself, and probably about the same way.

Cross-int. 263. Can you or not, and will you or not, state positively whether, from the time the Poughkeepsie machine arrived in Boston till the spring of 1876 you burnishhed edges in the manner described by you in answer to Int. 247?

Ans. I had a good many other duties besides edge-burnishing to attend to, and until the February of 1876 my work was at odd times on the edge-setter. I probably burnished a good many shoes before February, 1876, in precisely the manner described by me in answer to Int. 247.

Cross-int. 264. How did it happen that in answer to cross-interrogatories you were unable to explain how you used the machine in its early stages and yet are able to explain on redirect examination, which you say was like that in the early time?

Ans. My explanation in 247 is as I should do it now. How

169 I held my hand in the early stages was probably not much different, but in learning a machine many experiments are tried to aid in convenience of the operator.

Cross-int. 265. Was the method of using the Helms machine from the spring of 1875 to the spring of 1876 so unlike that described by you in answer to Int. 247 that you are unable to describe how it was done before the spring of 1876?

Ans. Different kinds of work and different operators varies the mode of holding the shoe a litte. I described it the way I did it when I became an operator, practically.

Cross-int. 266. Was the method of using the Helms machine actually established as now practiced and taught until the spring of 1876, when you became proficient as an operator and instructed others in the use of it?

Ans. The method, as I believe, has never been changed since the first Poughkeepsie machine, at all.

Cross-int. 267. Do you mean in answer to the last question the method of holding and manipulating the shoe and presenting its edge to the burnishing iron?

Ans. I do.

Cross-int. 268. Then if the method is the same now as in the time of the first Poughkeepsie machine, as stated by you in answer to 266, and you can describe the present method, why could you not, in answer to cross-interrogatories, have described the method then?

Ans. I don't believe that I ever went around the toe half way acceptably on six pairs of shoes on the Helms Poughkeepsie machine, and it is very hard to recollect the different attempts that I made in learning to operate around the toe.

Cross-int. 269. Do you mean in the matter of "recollect" how you tried to do it—that is, how you held and manipulated the shoe and presented its edge to the iron?

Ans. Of course.

Cross-int. 270. What was the distance, in your opinion, from the front of the base of the guard to the base of the rand lip in the irons used at Feary & Sons' when you were first there on the thin-soled shoes that you say they were burnishing? Please answer in fractions of an inch.

170 Ans. From $\frac{4}{48}$ to $\frac{8}{48}$, I should judge.

Cross-int. 271. That is, from $\frac{1}{12}$ to $\frac{1}{6}$ of inch, you mean?

Ans. Yes.

Cross-int. 272. Now, please examine Defendant's Exhibit Complainant's Patent Drawing Enlarged and state whether the following propositions are correct or not: That the bearing of the sole against the finger hook is a full inch and a quarter below the point where the sole touches the bed of the iron next the guard, which would be $\frac{60}{48}$ of an inch; that if the soles finished at Feary & Sons' were $\frac{6}{48}$ of an inch—the medium of your statement—that their thickness would be just one-tenth the distance from the bed of the iron down to the point of contact of the sole and the finger hook, and hence if the finger hook were moved back $\frac{1}{6}\frac{1}{4}$ of an inch, as inquired of you in Int. 249, that the displacement of the edge of the sole in relation to the iron next the rand lip would be $\frac{1}{6}\frac{1}{4}\frac{1}{0}$ of an inch.

Ans. Yes.

Cross-int. 273. Now, do you believe that with the well-known

elasticity and yielding nature of leather that the $\frac{1}{640}$ of an inch variation from the position shown in this exhibit would practically change the effect of that iron upon any part of the sole edge? And in answering this question please consider another fact, that, as these machines are now used, there is no gauge nor guide by which to adjust the very thinnest sole to the edge—that is, to give the sole the right cut across the bed to produce equal pressure across the bed—except the hands of the operator. In other words, would not an operator be well skilled who could hold a sole edge within the $\frac{1}{640}$ of an inch of perfection?

Ans. I do not believe it would have any practical effect on a No. 6 edge.

(Adjourned.)

BOSTON, *Jan.* 4, 1886.

Cross-int. 274. During the time between the first experiments on the Poughkeepsie machine and the shipment to Feary & Sons of the No. 1 machine who made the various patterns and changes of patterns which were required in the endeavors to render the machine satisfactory?

171 Ans. Mr. Newhall was the pattern-maker of the machine, but many little changes were made in Maloy's factory, undoubtedly, and often slight changes were made at the foundry when the patterns were there by the foundry pattern-maker.

Cross-int. 275. Who has been the regularly employed pattern-maker in connection with the Helms machine in the various changes and improvements thereof since the Poughkeepsie machine reached Boston?

Ans. At that time it was Turner & Newhall; now it is Newhall alone, and then later on Coy & Tuttle did work on different patterns for the machine.

Cross-int. 276. Please state as near as you can when Newhall or Turner & Newhall ceased to act as the pattern-makers for this machine.

Ans. I do not know, only I am sure that Messrs. Coy & Tuttle did work in 1878 or 1879 on the machine patterns.

Cross-int. 277. Referring to your answer to Int. 253, please state if, in your opinion, the drawings and specification of the Molliere patent inquired about are confined to a burnishing machine having no other guard to the burnishing iron except those marked *y y'*.

Ans. I have never seen the specification.

Cross-int. 278. Please answer the same question with regard to the drawing alone.

Ans. In the drawing figure 3 shows a guard for the iron, as I suppose, *y y'*. In figure 4 there is a section view of an iron, as I suppose. It has a guard and a lip. That's all there is that I see.

Cross-int. 279. Suppose the iron marked *p* in figure 4 were reduced proportionally to the size of the iron shown at *p* in figure 3, taking the threaded hole for the arbor in each as a basis, would not the part marked *y y'* extend below the guard sufficient to serve as a finger rest?

Ans. There is no threaded hole there.

Cross-int. 280. Please answer the preceding question, taking the threaded hole in figure 4 and the size of the arbor in figure 3 as your basis, and please state the sizes of the parts as you find them—that is, the size of the arbor in figure 3 and the size of the arbor hole in figure 4 and the outside diameter of the burnishing iron in figures 3 and 4.

Ans. I find the arbor in figure 3 to be one-eighth of an inch and the threaded hole in figure 4 seven-sixteenths, which makes
172 an increase in the drawing of seven to two. I find the iron in figure 3, its largest diameter, to be one-half an inch, and figure 4, its largest diameter, very nearly an inch and three-sixteenths.

Cross-int. 281. But suppose the iron in figure 4 to be proportionally reduced, what would then be its diameter? How much greater or how much less than the iron in figure 3?

Ans. I don't understand that question.

Cross-int. 282. If, as appears from your answer to Int. 280, the arbor hole in figure 4 is three and one-half times the arbor in figure 3, and the burnishing part or bed of the iron in figure 3 is one-half inch in diameter, then the burnishing part of the iron in figure 4, to be in the same proportion, should be three and one-half times that or one inch and three-quarters, should it not?

Ans. Yes.

Cross-int. 283. And the extreme outside diameter of the guard part in figure 4 should be still more, should it not?

Ans. Certainly.

Cross-int. 284. Taking these proportions and reducing the iron shown in figure 4 proportionally, is it not clear that when an iron like that shown in figure 4 thus reduced was placed upon the arbor in figure 3 that the whole of the vertical part of the portion marked *y* would extend below the guard of the iron?

Ans. Yes.

Cross-int. 285. Then, with a guard on the iron itself, as shown in figure 4, the part *y* could not be useful or needed as a guard, could it?

Ans. No.

Cross-int. 286. And would it not, in such a case, occupy the position and be available to perform the same function as Helms' finger hook in the Poughkeepsie machine.

Ans. It would occupy the same position, but would not be available for the same purpose for the reason that there is no possible need or use of it in connection with a rotary burnisher, but is an absolute necessity in a reciprocating burnisher, where the shoe is held in the hands of an operator and the edge presented to the iron, as in the Helms machine.

Cross-int 287. Would it or not be available as a finger rest provided the operator wished so to use it?

173 Ans. It would not, for the operator doesn't hold a shoe or operate the machine in the same way in a rotary machine,

and there is a doubt in my mind if he could, except as a feat, burnish edges with the aid of a finger rest with a rotary burnisher.

Cross-int. 288. Do you think that at the time Molliere's patent was granted, 1855, it was then known and understood that a finger rest would not be desirable with a rotary edge-finisher?

Ans. I do not believe a finger rest was ever thought of in connection with a rotary burnisher or used.

Cross-int. 289. Do you think a finger rest would be any more useful with a rotary trimmer than with a rotary burnisher; and, if so, why?

Ans. I do not.

Cross-int. 290. Why, then, do you think they employed the finger rest with a rotary trimmer?

Ans. I never knew or heard of one being used.

Cross-int. 291. Please examine patent to B. J. Tayman, dated March 11, 1873, and state if you find a finger rest therein in connection with a rotary trimmer.

Ans. I do; but I am very sure that the machine was never built—nothing but the patent to show for it.

Cross-int. 292. Referring to cross-int. 287, please state whether, if a workman desired to make use of the part marked *y* in the Molliere patent as a finger rest, there would be anything to prevent his doing so, and, in answering this question, please avoid your former statements as to whether it would or would not be advisable for him so to do, and confine your answer to the inquiry whether there would be anything to prevent his so using it if he saw fit.

Ans. As represented in the patent drawing, he couldn't use it at all.

Cross-int. 293. What would prevent any more than in Helms' first Poughkeepsie machine?

Ans. Nothing, as it first came on.

Redirect examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 294. Suppose any part of the edge were $\frac{1}{640}$ of an inch or any other smaller distance away from the burnisher, what would
174 be the effect? And explain in this connection the degree of importance of getting a firm and substantially equal pressure of the iron clear across the sole edge.

(All of the question down to the word "effect" objected to for the reason that the witness has already testified to the matter inquired about. To elicit the former answer would — immaterial, and it is not admissible to elicit a different answer for the witness to contradict himself.)

Ans. If the sole edge did not touch the iron within $\frac{1}{640}$ part of an inch, or any smaller amount or distance, it wouldn't touch the edge at all, and it is necessary to have pressure; the more equally distributed the better the work.

Int. 295. How does the Helms way of burnishing compare with

any other way known to you as to facility for getting this firm and even pressure on all parts of the edge?

(Objected to for two reasons: First, the witness was examined fully upon this point upon the direct; second, whether — was or not, it is not now open on the redirect.)

Ans. There is no other way as good.

Int. 296. State whether it is possible or not to get this even pressure in the Helms machine if the face of the sole is always held in contact with the front of the finger rest.

(Objected to; the witness has never qualified as an expert, and at this stage of the examination the question is inadmissible.)

Ans. It is impossible.

Int. 297. On what part of the edge are the irons shown in Fig. 3 of the Molliere patent designed to operate, and on what part is the iron shown in Fig. 4 of that patent designed to operate?

Ans. Undoubtedly the irons in Fig. 3 to burnish the heel edge of a shoe, and Fig. 4 the fore part of a shoe.

Int. 298. Is the guard y or y' useful or desirable in heel edges or fore-part edges, or either, and which?

(Objected to as grossly improper in form and leading, in that the counsel, as in former questions upon the same point, seeks to commit the witness to the assertion that the part y is a guard, when there is no justification for such assumption, no proof that it is a guard, and the counsel has no justification for putting the question in that form, and it is for the court to determine whether it is a guard or a finger hook, unless there is positive evidence otherwise.)

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Ans. The part or guard y and y' is an essential feature in a machine for burnishing edges of heels to preserve the tread corner of the edge, while in fore-part edge-burnishing it would be of no use, as the guard is shown on the iron in Fig. 4.

Int. 299. Are the bulk of fore-part edges now trimmed by rotary or reciprocating cutters?

Ans. Rotary.

Int. 300. Do you know or have you ever heard or have you any reason to believe that any machine for trimming sole edges was ever used in which a finger rest was employed?

Ans. No.

(Counsel for defendant objects to witness signing this deposition until counsel has opportunity to examine the Exhibit Copy of Patent Office Model which counsel for complainant says he shall introduce and about which the witness, under objection of defendant, was allowed to testify, such right to cross-examine the witness after examination of the model having been claimed by the defendant before the witness was examined by the complainant in relation thereto.)

GEO. A. FULLERTON.

Attest: WM. A. COPELAND,
Special Examiner.

177 *Second Deposition of C. H. Helms.*

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

BOSTON, *Jan.* 21, 1886.

Int. 1. What is your name, and have you before testified in this case?

Ans. Charles H. Helms; I have.

Int. 2. Please look at the bill now shown you and state whether it refreshes your recollection or not; and, if so, when your first sole-edge burnisher with a reciprocating iron was made and when it was brought to Boston to Dr. Flagg.

(Objected to as not being open on redirect examination; that the bill inquired about is not an exhibit in the case, and defendants *have* had no opportunity to prove its correctness or incorrectness; that complainants have had full opportunity to examine this witness and have done so as far as they saw fit in relation to the matter now inquired about, and that it is not now open for inquiry either by this witness or any other.)

Ans. This bill, I think—I am quite sure—represents the cost of that machine, and is dated here 1874, receipted. What did you say that means Mr. Maynadier? (Mr. Maynadier tells the witness that he must answer for himself.) Well, unless I know what that means I can go no farther with this bill. I have forgotten. I should say it meant receipted the second month, sixth day, '75. That is as near as I can get to that. I understand you want to know when the first shoe-edge polisher was made and brought to Dr. Flagg. I should say that it didn't differ not over a week from the date of this bill, 1874. Of course, the exact day I can't remember, but that is my opinion.

(The bill is now put in evidence and marked Complainant's Exhibit Sedgwick Bill, W. A. C., sp'l ex'r.)

Int. 3. Who paid the bill, and why?

(Same objection.)

178 Ans. Dr. Flagg paid the bill, because he was interested with me in the machine and agreed to do so.

Int. 4. About how long was it after you brought that iron machine from Poughkeepsie to Boston before the first or No. 1 machine was sent to Feary & Sons, of Albany?

Ans. I am quite sure that within a very few days we commenced the patterns for that Albany machine, so to speak, of Feary's. The patterns were made by Newhall—well, I should say it might have been from two to three months. I won't be sure, but I believe there is a bill of the work done on the patterns that will tell, I think, more correctly what the time was.

Int. 5. Please look at the model now shown you (now put in evidence and marked Complainant's Exhibit Helms Patent Office

Model, W. A. C., sp'l ex'r.) and state whether it is possible or not to burnish sole edges on a machine of that pattern while holding the face of the sole against the finger rest.

(Defendant's—object to the introduction of the model at this stage of the case, having had no opportunity to introduce any evidence in relation thereto, and give notice to complainant that if the model be now introduced they shall claim the right to reopen the testimony for the defence for the purpose of examining witnesses in relation thereto.)

Ans. I should say not—to polish the sole properly—to touch the edge all over; I should say not.

Int. 6. Please answer again the 3d Int. of your former deposition, which is as follows:

"Int. 3. Please state what you intended to be the rest for the face of the sole in burnishing sole edges with such machine at the time you filed your application for said patent."

(Objected to as not competent or now open to complainant to question the witness upon this point, he having been a witness summoned by the defendant and fully cross-examined by the complainant. If complainant in such cross-examination failed to fully examine the witness it is his own fault. If he wishes to show a different state of facts from that testified to by the witness there is a proper method of doing it by other witnesses; it is not competent to call and recall a witness either to reaffirm or contradict his own evidence.)

179 Ans. Such a machine—well, I shall have to say that when I filed the application for this patent which the model represents that it must have been the back lip of the polisher shown in the model; but this model doesn't show the—my real, true intention embraced in the first machine that I brought here—the first iron model. Neither is this polisher shown in the model (Patent Office model)—neither the finger hook shown in the model *are* either of them like in fact to—or like that of the first machine sent to Thos. Feary & Sons; neither are like that machine when it was first sent there. The polisher in that machine when first sent to Thos. Feary & Sons, of Albany, did not swivel, and I think was a round polisher—round polishing tool made after the fashion of a rotating tool, made fast to the reciprocating block or head, whichever you may term it, by means of a screw firmly—firmly fast to the head of the block. The hook in that machine was set out far enough so that the back part of the polishing tool came about in contact with the face of the finger rest just close enough not to create friction, or, in other words, so as to move smoothly by the finger rest and not create friction. That first machine corresponded in principle, really—that first machine that I sent to Feary's—in principle, to my first iron model, and my intention in either of them was to use the face of the finger hook as a rest in doing the toe of the shoe for the face of the sole; but this Patent Office model here is evidently an improvement, so to speak, on those two first machines—

the first iron model and the first machine sent to Feary's, of Albany. I wish to further state that I had forgotten the time of the application of this device—this model here (Exhibit Patent Office Model)—the difference in the time from the time I brought the first model being at least from eight to nine months, and having signed, as I now think I remember, and am quite sure of, a preliminary agreeemnt or, in other words, a preliminary application, as it were, in Mr. Maynadier's office, according to his advice, from eight to nine months before the patent for this model (Exhibit Patent Office Model) was applied for, and the signing of such an article led me to suppose that that was really the patent—that those were the papers on which this patent (pointing to the Exhibit Patent Office Model) was granted, and that I have not the slightest recollection of the time and manner in which this patent was applied for—on this model, and it didn't occur to me until Mr. Maynadier re-
180 minded me of the fact that he sent the specifications to me in Poughkeepsie to make oath to and have witnessed, and to send the same to the Patent Office direct from Poughkeepsie.

Int. 7. How often was the head or upper part of that first machine that went to Feary's altered during the summer of 1875?

Ans. I am quite sure that it was taken off once, at least, and sent to Boston to, I think, Maloy—James W. Maloy—for alteration, and I think those alterations were the swivelling of the polishing tool, for one thing, and I think that still there was another point pertaining to the steam—heating the polisher by steam. I think there were some alterations there. If there was any other I don't remember them, but I am quite certain that those two alterations were made. The head might have been taken off again, or several times, but I have no recollection of its being taken off more than once.

Int. 8. Do you know why that first application made by you here in Boston was never filed at the Patent Office?

(Objected to as entirely new matter and not open on the redirect.)

Ans. I think I understand it now, but previously I did not. I think, and am quite sure—let's see; how is that question again? (Question re-read.) I think it was for the purpose of experimenting, and also for the purpose of arranging matters in relation to the buying of the Ingalls device—the swivelling polisher. I am quite sure that that is what caused the delay. I think that is plain from the fact that we could not use the Ingalls polisher in a swivelling form without arranging with the parties who owned the patent, who, I think, was a man by the name of Breed, and Peabody, of Lynn. I don't know as I can answer any further to that question.

Int. 9. When did you last attempt to use one of your machines for burnishing sole edges?

(Objected to as immaterial.)

Ans. My last attempt was at Feary's when I took it there. I have never attempted to use it since, except, perhaps, once in awhile to pick up a shoe in a factory and just apply it to the polisher.

Int. 10. Do you now see that the back of the iron in Defendant's

Exhibit Helms Model is much nearer the finger rest than in the Patent Office model, and that the face of the finger rest is much flatter in Defendant's Exhibit Helms Model; if so, what was the purpose of these changes so far as you know?

(Objected to as leading.)

181 Ans. I think it is evident in comparing the two that the finger rest in defendant's model is straighter below the back lip of the polishing tool, and also that the back of the polisher—that is, the back lip—in defendant's model is shown to be nearer to the face of the finger hook. I think that the defendant had in his mind my first, primitive idea, which was to hold the face of the sole of the shoe against the face of the finger rest in polishing the toe. I think that that is where defendant was led astray in his model.

Int. 11. Please answer again the 27th question in your former deposition, which is as follows: "Cross-int. 27. Do you think that the swiveling tool is not shown in your patent?"

(Objected to as incompetent and irregular.)

Ans. I should say, as I now have the complainant's model to look at and the drawing corresponding with the model—I should say it did show a swiveling tool.

Int. 12. What explanation can you give for having testified in your former deposition that the swiveling tool was not shown in your patent?

(Same objection.)

Ans. Well, the only reason I can give for that is that I was led to judge more from defendant's model than from the drawing. That is the only reason I can give.

Int. 13. Do you keep in mind the various inventions you have made?

(Objected to as immaterial.)

Ans. Not altogether. No, sir; I do not.

Cross-examination by T. W. PORTER, Esq., of counsel for defendant:

Cross-int. 14. At the time you gave your former testimony in this suit as a witness for defendant Mr. Maynadier, counsel for complainant, spoke in a complaining or fault-finding way to you in regard to you giving testimony which would injure the patent which you had sold to Dr. Flagg, did he not?

Ans. I think Mr. Maynadier asked me whether or no I didn't know that I was trying to kill my own patent. I think my answer was that I wasn't aware of any such fact.

Cross-int. 15. Please state when next after the remarks made by Mr. Maynadier, as just stated, any one spoke to you about
182 this suit or your testimony who was interested with or represented the complainant or Dr. Flagg.

Ans. Nobody that I can remember of except it was Mr. Ashe him-

self and, perhaps, Mr. Eddy. That was directly after I was examined here.

(Question re-read.) O, the next time was when I last came on here to Boston. I called on Dr. Flagg at his office, 25, I think, Tremont street, for the first time since I was called by Mr. Ashe. At that time Mr. Flagg told me that he was pleased to see me, and that he thought he should want me as a witness in this suit. That's correct and all, as near as I can remember distinctly now.

Cross-int. 16. When did you arrive in Boston, as stated in your last answer?

Ans. It think it was last week, Thursday. I may be one day out of the way, but I think it was last week, Thursday.

Cross-int. 17. You have always dealt with and had your interviews with Dr. Flagg as the representative—in fact, the head, front, and body—of the Union Edge Setter Co., have you not?

Ans. So far as I was personally interested and no further.

Cross-int. 18. You know of no one in connection with or representing the Union Edge Setter Co. except Dr. Flagg and Mr. Maynadier, do you?

Ans. Well, I know of Mr. Maynadier as Mr. Flagg's attorney. I know of Mr. Flagg as an owner, and I have known of two other parties who I have been told are owners—Mr. Breed and Mr. Peabody, and also Feary's folks of Albany.

Cross-int. 19. Have you ever had any business intercourse with any man interested in the Union Edge Setter Co. as a manager except Dr. Flagg as manager and Mr. Maynadier as counsel?

Ans. No, sir.

Cross-int. 20. Please state whether you received any communication from any one having any relation to the Union Edge Setter Co. in regard to the matter of your last coming to Boston.

Ans. Not the slightest; not the least intimation, by letter or otherwise.

Cross-int. 21. How soon after coming to Boston the last time before you saw Dr. Flagg?

183 Ans. I think it was the same day that I arrived here. I think it was the second day that I called on Eddy, Russell & Co., the first parties I called on. I wanted to find where a certain machine that belongs to me was stored. I inquired of Mr. Eddy where I could find certain parties, and Mr. Eddy tried to tell me, but he said he was going down in the vicinity of where these parties were that I wanted to find. The Busell Trimmer Co. were the parties I wanted to find. Mr. Eddy said he was going down to Mr. Ashe's place, and would go down that way with me. He pointed out the place to me, but I didn't go there when he pointed it out. I continued my walk with Mr. Eddy over to Mr. Ashe's factory. After awhile Mr. Ashe walked out with me, and we walked along until we came to Mr. Flagg's office, and I told Mr. Ashe that I wanted to see Mr. Flagg about that machine, and that was the reason why I went in to see Mr. Flagg.

Cross-int. 22. Please state how many interviews you have had with Dr. Flagg since you arrived in Boston, as stated.

Ans. I might have called in there to see him in a friendly way, perhaps, three or four times.

Cross-int. 23. Please state who else you have seen or who else has been to see you about the matter of this suit or your testifying therein since you arrived in Boston.

Ans. Nobody that I can think of—that I know of.

Cross-int. 24. During any of the interviews with Mr. Flagg, as you have stated, did you have any conversation with him in relation to your former testimony in this suit or in relation to your giving further testimony in the suit?

Ans. I don't remember of anything special being said, except that Mr. Flagg told me he thought he should want me to testify in this case.

Cross-int. 25. Were you summoned here as a witness by subpœna and tender of fees?

Ans. No, sir.

Cross-int. 26. Please observe that by your answers it appears that since your late arrival in Boston, as stated, you have seen no one and no one has seen you about this case or your testifying in it except Dr. Flagg, and that he only stated to you that he might want you to testify as a witness. Now, do you wish it to be under-
184 stood that you have had no conversation with any one about your testifying here except what you state that Dr. Flagg said to you?

Ans. I wish to amend that a little—that is to say, one man that I called on I had forgotten about, and that is Mr. Dodge, with whom I had some little conversation—J. Wesley Dodge—except him and Dr. Flagg, and Mr. Maynadier is to be included, of course; I called on him two or three times. That is all, sir. I would like to add that my visit to Boston here from Poughkeepsie was purely on business of my own, a personal matter, nothing to do with anything pertaining to this suit whatsoever, and knew nothing about it until I got here—that is, knew nothing about my being wanted as a witness.

Cross-int. 27. Please note that the last answer inquired about those with whom you had conversed about testifying in this suit. Did you see Mr. Dodge in relation to this suit or in relation to anything concerning this suit?

Ans. No, sir; I simply called on him as a friend and to see his machine.

Cross-int. 28. How many interviews did you have with Mr. Maynadier with relation to your former testimony or in regard to what you were to testify to at this time?

Ans. I might have called in to see him two or three times; I couldn't state the number. My object in coming was to see some bills, one of which was shown me this morning. The bills related to the building of edge-setter and experiments.

Cross-int. 29. At whose request did you call to see Mr. Maynadier at any of these times?

Ans. Well, the first time I spoke of certain dates relating to the Union edge-setter and experiments thereon, and Mr. Flagg said that

Mr. Maynadier had some of these receipts, and I better go down to his office and see them.

Cross-int. 30. What was the occasion of your speaking to Dr. Flagg with relation to the dates of experimenting on the Union edge-setter?

Ans. My object was to get at the facts of the time that elapsed during the experiments and the time of applying for the patent on the Patent Office model—to get at the time that elapsed between.

Cross-int. 31. Had you any interest in getting at the time
185 stated in your last answer except in connection with this suit? If you had any other interest please state what it was.

Ans. Not any, except as a witness to get at the facts as near as possible.

Cross-int. 32. If at the time you went to Dr. Flagg's you did not know that you were to testify again in this suit and Dr. Flagg said no more to you than you have stated how did it happen that you were inquiring in regard to the dates of bills which Dr. Flagg referred you to Mr. Maynadier about?

Ans. I told Mr. Flagg that he ought to have all the bills pertaining to the experiments, building of patterns, and so forth, and that in order for me to get out of a fog in this suit, in my testimony, it was necessary that I should see them and know what I had to testify to, because I had forgotten, actually forgotten, as I have stated before, many of the facts in the case.

Cross-int. 33. Did you go to Dr. Flagg's for the purpose of having this conversation with him regarding your testimony? Was that your purpose in going there?

Ans. No, sir.

Cross-int. 34. Who brought on this conversation—you or he?

Ans. Well, he was the first to say he thought he should want me as a witness; the first I heard of it; the first I knew of it. I wish to add, further, that Mr. Flagg and myself are interested in a patent outside of the Union edge-setter. He owns half and I half of it, and my object in coming here to Boston at this time was, in part, to have a model made of another device I have and to see if I could not dispose of my half interest in the patent to Mr. Flagg or some one else. That is the exact reason of my coming here.

Cross-int. 35. As it appears from your testimony already given to-day that there was between you and Dr. Flagg other conversation than his statement that he might want you to testify farther in this case as a witness, will you now please state in its order, as near as you can, all the conversation between you and Dr. Flagg at all the interviews since your late arrival in Boston?

Ans. We had but very little conversation in relation to my being a witness. Mr. Flagg was very reticent in the way of talking about the matter, and made one remark that led me to believe that
186 I would be cross-questioned in the matter and he better not have much conversation; better not have any conversation about it. This remark was, of course, outside of his naming the bills in possession of Mr. Maynadier.

Cross-int. 36. Well, if the conversation was but very little it may be all the quicker told. Please tell it, as near as you can.

Ans. Well, about the weather, the state of the weather, his trade and success on the Union edge-setter, and other business, but nothing—I say not a thing—to bias me in his favor in any way whatsoever.

Cross-int. 37. Who first spoke about these bills, one of which has been introduced to-day?

Ans. I did myself.

Cross-int. 38. Was there not some statement by Dr. Flagg or some conversation between you that led to your speaking of the bills? If so, please state what it was.

Ans. Not any that I know of. I was the first, as I now remember, to mention those bills.

Cross-int. 39. Did you mention the bills before there was any conversation about this suit?

Ans. I mentioned the bills after Mr. Flagg said he thought he should want me as a witness, remarking at the same time that he was glad I had come on; he was glad to see me here.

Cross-int. 40. During your interviews with Mr. Maynadier, after seeing Dr. Flagg, as stated, has he repeated in substance or in any form the statement that he made to you at the time of your former testifying that you were trying to kill the very patent that you had sold?

Ans. Not that I remember of. I don't remember anything of that kind about Mr. Maynadier.

Cross-int. 41. Has no one stated to you or intimated to you that your former testimony tended to injure or destroy the patent that you had sold?

Ans. Yes; Mr. Ashe, for one, Mr. Dodge, for another, and I am not sure but Mr. Eddy may have said something to me about it. I won't be sure as to him.

Cross-int. 42. Please state whether or not your present visit to Boston in relation to the patent that you and Dr. Flagg own together was made at his request or suggestion.

187 Ans. O, no; not at all. It had nothing to do with the edge-setting machine. Mr. Flagg had nothing to do with it. It was my own invention. We only own one patent together that I can think of.

Cross-int. 43. The foregoing question being plainly misunderstood, it is repeated, but in changed form. Did Dr. Flagg or any one in his behalf suggest to you or request you to come to Boston at this time in regard to the patent that you and Dr. Flagg own together?

Ans. No, sir.

Cross-int. 44. Have you made any trade with him in relation to that patent?

Ans. No, sir.

Cross-int. 45. Any contingent or conditional agreement about it?

Ans. No—that is, not in the way of my disposing of it at present.

Cross-int. 46. Have you made any agreement, contingent, condi-

tional, or otherwise, whether of sale, license, or otherwise, of your interest under that patent?

Ans. Not as yet of my half.

Cross-int. 47. Have you agreed upon any terms upon which any trade shall be carried out?

Ans. No.

Cross-int. 48. Is there any understanding as to what arrangement or disposition shall be made of your interest in that patent?

Ans. No, sir.

Cross-int. 49. Please state whether any one else besides yourself and Dr. Flagg was present at any of your conversations with him since your late arrival in Boston.

Ans. I couldn't say. His place being a business place, there was frequently people going in and out. There might have been ladies and gentlemen sitting in the reception room, waiting to be served or to have their teeth fixed, but no one that I knew.

Cross-int. 50. Please state what the patent is which you say that you and Dr. Flagg own together.

Ans. An edge-trimming machine.

Cross-int. 51. In your answer to Int. 2 you speak of the date of 1874 on the exhibit bill. There being several dates of 1874 on the bill, please state which 1874 your answer to Int. 2 refers to.

Ans. Well, I should say that it all pertains to one machine, and that the work was done at different dates shown on the bill,
188 on the same machine. That is the case with all first new machines—experimental work. (Question re-read.) I think all these dates here pertain to 1874.

Cross-int. 52. You say in answer to Int. 2 that the time the first polisher was made and brought to Dr. Flagg differs a week from the date of this bill—1874. Now, as *they* are various dates of 1874 in the bill, please state which of those dates you referred to in that answer, if you referred to any particular one.

Ans. I take them altogether as meaning the work done on that shoe-edge polishing machine.

Cross-int. 53. Did you test that Poughkeepsie machine in burnishing sole edges here in Boston soon after you arrived with it; and, if so, with what success?

Ans. Yes; I tested it within a day or two after I arrived here with it. Considering it was the first machine, it worked very well. It demonstrated the fact that it would burnish edges, and was considered only as an experimental machine, and not as a machine to be put on the market as it was.

Cross-int. 54. How good work did you succeed in doing on it the first week?

Ans. Well, I should say very fair; fair enough to induce Mr. Flagg to go on and get up a better-looking machine and one a little more practical, and also perfecting the building, and that second machine was the machine that went to Thos. Feary & Sons, of Albany.

Cross-int. 55. Can you not state how good quality of work you

succeeded in doing that first week? Was or not the best of it fair, merchantable work?

Ans. Well, I should say that it wasn't good enough for a general thing. It might have been good enough for common, ordinary goods.

Cross-int. 56. Do you think that Complainant's Exhibit Helms Patent Office Model agrees with the drawings in the Helms patent?

Ans. I think it does.

Cross-int. 57. What is the relative proportion, in point of size, of Defendant's Exhibit Helms Model to the machine made in Poughkeepsie and afterwards brought to Boston?

Ans. It wasn't that shape. As near as I can remember, it was a foot and a half long, a shaft running in brackets, and a side lever attached to give a straight reciprocating motion, as near as I
189 can remember. It was so long ago I couldn't give an exact description of it, but it was something as I have stated.

Cross-int. 58. How will Defendant's Exhibit Helms Model compare in size with the first machine that was made in Boston and sent to Feary & Sons?

Ans. As near as I can remember I should think it was nearly what may be termed life size—the head of it. I should say so as near as I can remember.

Cross-int. 59. What do you think is the proportionate size of Complainant's Exhibit Helms Patent Office Model with the first machine—the one sent to Feary & Sons?

Ans. I should think the Patent Office model was a third smaller, as near as I could judge by looking at it and trusting to memory.

Cross-int. 60. Please examine the Helms patent drawings and state if the face of the finger hook is not parallel with the back face of the burnishing iron from the shoulder thereof to the lower end of the lip.

Ans. Well, I should say it was. It looks so to look at it with the eye, and also from 'measurement—that is to say, the line on the finger hook D, next to the line of the lip of the polishing tool C, are parallel one to the other.

Cross-int. 61. Now, please examine Complainant's Exhibit Helms Patent Office Model and state if the same parts are not oblique to each other in their whole extent.

Ans. Well, there is a trifle, probably a thirty-second of an inch, as they stand now—that is, the lower end of the lip on the polishing tool might not come as near the finger rest D within a thirty-second of an inch as the upper part of the polishing tool does.

Cross-int. 62. If the burnishing iron in the Complainant's Exhibit Helms Patent Office Model was lowered so that all of the square part of the iron was next the face of the hook, as in the patent drawings, the obliquity or variation would be still greater than it now is, would it not?

Ans. I think so, from the very fact that the finger hook D from the lower end of the lip on the polishing tool C is a gradual round its full length, as I look at it. Therefore the further the polishing tool extends downward in front of the hook the more opening

190 there would be between the front part of the finger hook D and the lower part of the lip of the polishing tool C.

Cross-int. 63. Does not the position of the finger hook and the burnishing iron in Complainant's Exhibit Helms Patent Office Model disagree with the Helms patent drawing in the matter of the relative positions or form of the finger hook and burnishing iron, in that the face of the finger hook extends up to about the shoulder of the burnishing iron in the drawings, while in the model the face of the hook terminates about midway between the lower end of the lip and the shoulder?

Ans. I think there is a little difference, but I cannot discover why that should affect the operation of the machine.

(Adjourned.)

BOSTON, *Jan.* 22, 1886.

Cross-int. 64. Does not the position of the finger hook in relation to the burnishing iron in Defendant's Exhibit Helms Model more nearly correspond to the drawings in the Helms patent than do the same parts in Complainant's Exhibit Helms Patent Office Model in the matter of the parallelism of the front of the finger hook and the back of the iron?

Ans. I think not.

Cross-int. 65. You have already stated, have you not, that in the Helms patent drawing the back face of the burnishing iron is parallel with the front face of the hook? Now, is there any part of the iron in Complainant's Exhibit Helms Patent Office Model that is parallel with the adjacent part of the hook?

Ans. (To the first branch of the question:) Yes. (To the last branch of the question:) Well, I should say that there was about a thirty-second variation below the shoulder of the hook and the lower edge of the lip of the polishing tool.

Cross-int. 66. Your answer does not meet the question. Please state whether any part of the burnishing iron is parallel with the adjacent face of the hook.

Ans. Well, I should state, as I did before, that the polishing tool varies from the line of the face of the hook in not being parallel, as it were, with the face of the hook at the lower end of the lip of the polisher about a thirty-second of an inch.

191 Cross-int. 67. Please note that you are not asked what the amount of space is at the lower end of the lip, but the question is this: Is there any part of the back face of the iron that is parallel with the adjacent part of the face of the hook, or is the divergence continuous from the top part of the face of the finger hook down as far as the burnishing iron extends?

Ans. I should say that the back part of the polishing tool is not strictly in line with the face of the finger hook, the lower part of the lip of the polishing tool not being as close to the face of the finger hook as the top part of the polishing tool, that terminates near the shank.

Cross-int. 68. Then, in the relation of the iron to the finger hook, Complainant's Exhibit Helms Patent Office Model is entirely unlike

the Helms patent drawing, is it not, as in the patent drawing the hook and burnishing iron are parallel, while in the model they are in no part parallel?

Ans. Well, I should say there is a little difference in that respect.

Cross-int. 69. Are they not entirely unlike in that respect; and if not, why not?

Ans. I should say that the lines representing that point in the drawings and the lines shown in the model vary, as I have before stated.

Cross-int. 70. Do not the relative positions of the iron and finger hook exactly agree in the Helms patent drawing and in the Def't's Ex. Helms Model, and in so far as that the two parts are parallel in each?

Ans. I think the two parts are parallel in defendant's model—that is to say, the back part of the polishing tool in defendant's model is in line with the face of the finger hook, so far as I am able to judge.

Cross-int. 71. Well, are not the finger hook and burnishing iron in the same relation in the Helms patent drawings?

Ans. So far as that point is concerned, I think they are, except the space between the face of the hook and the burnishing iron.

Cross-int. 72. Please examine Def't's Ex. Helms Model and Compl'nt's Ex. Helms Patent Office Model and state what difference there is in the relative distances between the finger hook and the burnishing iron when at the nearest position to each other.

Ans. I think the Compl'nt's Ex. Patent Office Model is so made as to admit of a space between the face of the finger hook and the lip of the polishing iron by setting the finger hook back to
192 its proper position in the model, and that defendant's model doesn't show any such feature.

Cross-int. 73. The question is repeated, with the request that the witness will observe that the question merely asks what is the difference between the relative positions of the burnishing iron and the finger hook in the two models when at the nearest position to each other.

Ans. I think that the def't's model is, at that point, more accurately made as far as the lip extends downward from the face of the finger hook and less perfect at the same distance shown in the complainant's model.

Cross-int. 74. Please look at Def't's Ex. Helms Model and Compl'nt's Ex. Helms Patent Office Model and state if the finger hook is not just as near the burnishing iron in the one as in the other.

Ans. Well, I should say in a practical sense, as they now appear to me, they are about the same.

Cross-int. 75. Then, what reason did you find for stating in a former answer to a direct int. that there was a difference between the two models in the matter of the space between the finger hook and the burnishing iron?

Ans. The reason is that when I first saw compl'nt's model the finger hook was set back to what I should say to be its proper posi-

tion, while, as I now see it, it appears to have been moved out to the back of the polishing tool or near it.

Cross-int. 76. Take Def't's Ex. Helms Model and with the hook remaining in its present position the distance between that and the burnishing iron would vary according to the size of the iron, would it not, considering all the variations of the size of the irons?

Ans. Well, to that I can only say that I am not conversant with the variations in polishing tools of that description—that is to say, in the making of them; but it is natural to suppose that the stems or shanks of such polishing tools are intended to be all of a size, and that the size of the face of the polishing tools must naturally vary according thereto, and in which case there would be more stock on the tool toward the face of the finger hook, yet that would depend altogether on the stem or shank of the tool.

Cross-int. 77. If an iron like Defendant's Ex. Compl'nt's
193 Burnishing Iron No. 22 was used in Def't's Ex. Helms Model the position of the hook and iron would be about the same as shown in the model, would it not?

(The said burnishing iron is now put in evidence.)

Ans. About the same.

Cross-int. 78. If an iron like Def't's Ex. Compl'n't's Burnishing Iron No. 3 was used in Def't's Ex. Helms Model there would be a space of about a quarter of an inch between the finger hook and the iron, would there not?

(The iron referred to is now put in evidence.)

Ans. Evidently. I think there would.

Cross-int. 79. Then the distance between the iron and the hook, if we suppose the hook to remain unchanged in its position, depends upon the size of the iron, does it not?

Ans. In the defendant's machine, I should say it did.

Cross-int. 80. How would it be in a machine like that shown in Compl'n'ts' Ex. Helms Patent Office Model?

Ans. If the hook in the Helms Patent Office Model was to be set and kept at a stationary point it would be the same, but I notice in the Helms Patent Office Model there is an adjustable feature in the hook, inasmuch as the hook can be set backward and forward or, in other words, adjusted to suit the different-sized tools as used.

Cross-int. 81. Is not the hook made adjustable in the Def't's Ex. Helms Model?

Ans. I should say not, to the present tool exhibited in the model.

Cross-int. 82. Please note that the preceding question inquires about the machine independent of the iron, and please answer it independent of the iron.

Ans. On examination I find that it has features for adjustment.

Cross-int. 83. Taking the relative sizes of Defendant's Exhibit Helms Model and Complainants' Ex. Helms Patent Office Model, is not the burnishing iron in def't's model larger in proportion than it is in compl'n'ts'?

Ans. I think it is. I am sure it is.

Cross-int. 84. Then if the iron in def't's model was redued in size to be in proportion to that in comp'l'nts' model the adjustability of the finger hook could be utilized, could it not, so as to be moved forward and back?

194 Ans. Yes, sir.

Cross-int. 85. Then it is not clear to you that the matter of nearness or distance between the finger hook and the burnishing iron depends materially upon the size of the iron?

Ans. Well, to that I should say that it does, considering that the largest size iron be not used in the defendant's model as it now appears to me, as I think that when the largest tool is used the finger hook cannot be set back as it is now shown in def't's model, but in using a smaller polishing tool the finger hook may be set forwards and back to suit.

Cross-int. 86. Defendant's model would be just as much a Helms machine when made to use a small iron in it as when made to use a big one, would it not?

Ans. I think not. I think not, emphatically; not the Helms machine as shown in the Helms Patent Office Model.

Cross-int. 87. Then you think the size of the iron would determine whether the machine was a Helms machine or not? Please state whether this is so or not.

Ans. No, I don't think that would determine it. The fact that different-sized polishing irons or common tools used either in a machine or by hand.

Cross-int. 88. Please hear cross-int. 86 re-read, in view of the last question and answer, and state why a model like Def't's Ex. Helms Model "would not be just as much a Helms machine when made to use a small iron in it as when made to use a big one."

Ans. Well, to that I say that, the finger hook being the main feature in the Helms machine, a hook shown in def't's model which I consider different in shape from the one shown in the Helms Patent Office Model makes it appear impossible to me for the two to be similar and alike in operation, as the hook in the def't's model is shown to represent my first primitive idea of the face of the hook, while the hook in the Helms Patent Office Model is gradually curved from the lower end of the lip on the polishing tool, and that of the defendant's model on its face is flat and straight on its face for about, to the best of my judgment, seven-eights of an inch below the lip on the polishing tool.

Cross-int. 89. Suppose that a machine were made like Def't's

195 Ex. Helms Model, with a finger hook so arranged that when the smallest size iron was used in the machine there would be the same proportionate space between the hook and the iron that there is in Complainants' Ex. Helms Patent Office Model, would in such case Def't's Ex. Helms Model, in your opinion, represent a Helms machine?

Ans. I think not.

Cross-int. 90. Do you think the distance between the finger hook and burnishing iron constituted any part of your patent?

Ans. I do.

Cross-int. 91. Please examine the patent and state what leads you to think that the space between the burnishing iron and the finger hook constitutes any part of your invention.

Ans. I think it does because there is a space shown between the face of the finger hook and back of the polishing tool.

Cross-int. 92. Anything else?

Ans. No.

Cross-int. 93. The hook is shown and represented as adjustable, is it not?

Ans. Yes.

Cross-int. 94. What object do you think there was in having the adjustment?

Ans. I think it was to shove it in and out from the face of the tool, so as to suit the operator.

Cross-int. 95. Do you think it required pretty nice adjustment of the finger hook in relation to the iron?

Ans. I think that depended a good deal on the will and notion of the operator. That is as near as I can answer that question.

Cross-int. 96. Please examine the exhibits now shown you, marked respectively Defendant's Exhibits Complainants' Burnishing Iron No. 14, No. 16, and Def't's Ex. Def't's Burnishing Iron No. 28, and state if they are burnishing irons of well-known sizes of burnishing iron such as are used in the Helms machine.

(The exhibits referred to are now put in evidence.)

Ans. As near as I can remember—carry the looks of them in my mind—I should say they were, those two, No. 14 and 16, such as are used in the Union edge-setter. The one marked 28 doesn't
196 seem to be, as far as the shank is concerned, *to be* an iron that they use, to the best of my judgment.

Cross int. 97. Have you at any time within the last fortnight, or thereabouts, received a letter requesting you to come to Boston?

Ans. No, sir; I have neither been requested by letter nor by any person verbally or had any intimation from anybody to come to Boston on this business or any other outside of my own business, which was entirely outside of this matter or pertaining thereto. I came here for the purpose of staying two or three weeks to spend a little time at my own personal business, which has nothing to do with edge-polishing whatsoever, and never knew that I would be asked to give in my evidence in this case till I arrived in Boston.

Cross-int. 98. Up to the time of your late arrival in Boston, have or not your relations to Dr. Flagg been of a fairly friendly nature?

Ans. Well, I can't say that in that direction there has been anything serious on my part. What Mr. Flagg may have felt is more than I can tell. I was of the impression when I first came here for Mr. Ashe that Mr. Flagg didn't feel very friendly toward me for coming here on the occasion of giving in my evidence for Mr. Ashe, at the time, but I learned from Mr. Flagg's own mouth that he had no feeling toward me in the matter at all. That's all I can say about that matter.

Cross-int. 99. Then you have had some conversation with Dr Flagg about your former testimony in this suit, have you not?

Ans. Nothing further than to ask him myself whether or no he felt put out with me for coming on here for Mr. Ashe. The reason of my asking that question was that I called on him at the Tremont House and wished to see him, and, either through misunderstanding on his part or my not giving proper directions, he eluded me and went off and I didn't see him. I had to go home that evening and consequently I couldn't call on him the next day. That is why I conjectured that he might have felt put out with me; but I learn that he had no such feeling toward me. And I think immediately after that conversation he told me that he might want me as a witness in this case. That's the first I heard of it. I supposed the evidence was all in—was all complete; had some reason for thinking so from what Mr. Eddy told me when I was on here for
197 Mr. Ashe, because Mr. Eddy told me that Mr. Ashe had gone up to see his attorney and Mr. Maynadier—I think he said—to state to both that he was ready to join issue in the suit.

Cross-int. 100. This conversation with Dr. Flagg was in addition to anything stated by you yesterday, was it not?

Ans. I think all except his saying that he thought he should want me as a witness in this suit.

Cross-int. 101. What other conversation did you have with Dr. Flagg, if any, which led to the arrangement of your being here yesterday as a witness?

Ans. Not any that I can remember of, beyond what I have previously stated.

Cross-int. 102. When and with whom was such arrangements made?

Ans. I think that it was the first day that I arrived here, with Mr. Flagg—that is, I told him I would act as a witness in this case to the best of my ability and recollection of facts.

Cross-int. 103. There was conversation either with him or Mr. Maynadier as to what facts you would be willing to testify to, was there not?

Ans. Well, I don't remember as regards that particularly. All I can says is, after I agreed to be examined in the case I sought after something to refresh my memory. Mr. Maynadier having some bills in relation to my former experiments on the machine in question, I asked Mr. Maynadier to let me see them and look them over.

Cross-int. 104. How did you ascertain that he had these bills?

Ans. I inquired of Mr. Flagg myself, and Mr. Flagg told me that Mr. Maynadier had several bills relating to the experiments I speak of.

Cross-int. 105. Who first referred to the bills, you or Dr. Flagg?

Ans. I did myself. I spoke of them, as I wanted a starting point, something to base my memory on, in order to give what I thought might be a fair statement, so far as I knew.

(Noon recess.)

Cross-int. 106. Please state whether up to your late arrival in

Boston, as inquired in cross-int. 98, your own feelings toward Dr. Flagg had been of a friendly or unfriendly nature. Please state more fully than in cross-int. 98, as that refers to Dr. Flagg and not to yourself.

198 Ans. I should say not unfriendly.

Cross-int. 107. Please examine the letter now shown you, marked Defendant's Exhibit Helms Letter A, and state whether it was written by you to Mr. Ashe, as it purports.

(The letter referred to is now put in evidence.)

Ans. When I wrote that letter I supposed that to be so. (Question re-read.) Yes; I wrote the letter to Mr. Ashe, and I supposed what was written here to be so at the time, but have since learned from the Doctor himself, as I have before stated, that he had no feeling toward me in that direction.

Cross-int. 108. Please examine the letter now shown you, marked Defendant's Exhibit Helms Letter B, and state whether it was written and mailed by you to Mr. Ashe at the time of its date.

(The letter is now put in evidence.)

Ans. Yes; that is correct; I wrote that letter.

Cross-int. 109. Please examine the letter now shown you, marked Defendant's Exhibit Helms Letter C, and state whether it was written by you at the time it bears date.

(The letter is now put in evidence.)

Ans. Well, I wrote that letter.

Cross-int. 110. Please examine the letter now shown you, marked Defendant's Exhibit Helms Letter D, and state whether you wrote that at the time it bears date.

(The letter is now put in evidence.)

Ans. Yes; I wrote that letter.

Cross-int. 111. Answer the same question as to the letter marked Defendant's Exhibit Helms Letter E.

(The letter is now put in evidence.)

Ans. That is correct; I wrote that.

Cross-int. 112. Please look at the letter marked Defendant's Exhibit Helms Letter F and state whether it was written and mailed by you to Eddy, Russell & Co. at the time it bears date.

(The letter is now put in evidence.)

Ans. Yes; I wrote that letter.

Cross-int. 113. Please look at the letter marked Defendant's Exhibit Helms Letter G and state whether it was written by you to Mr. Ashe at the time it bears date.

199 (The letter is now put in evidence.)

Ans. I wrote that one.

Cross-int. 114. Please look at the letter marked Defendant's Ex-

hibit H and state whether it was written by you to Mr. Ashe or not.

(The letter is now put in evidence.)

Ans. Yes; I wrote that.

Cross-int. 115. Please examine the letter marked Defendant's Exhibit Helms Letter I and state whether you wrote that to Mr. Eddy, as it purports.

(The letter is now put in evidence.)

Ans. Yes; I wrote it.

Cross-int. 116. Please examine the letter marked Defendant's Exhibit Helms Letter J and state whether you wrote that to Mr. Ashe, as it purports.

(The letter is now put in evidence.)

Ans. Yes; I wrote that one.

CHARLES H. HELMS.

Attest: WILLIAM A. COPELAND,
Special Examiner.

200 *Deposition of J. Q. Newhall.*

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

BOSTON, *January* 22, 1886.

Int. 1. What is your name, age, residence, and occupation?

Ans. J. Q. Newhall; 55; Medford; pattern-maker.

Int. 2. Please look at the model now shown you, Compl'nt's Exhibit Helms Patent Office Model, and state whether you ever made one like it or not; and, if so, when, and for whom.

Ans. I did make one in November, 1875. I suppose it was for G. H. P. Flagg. He paid the bill. It was made under Mr. Maloy's directions.

Int. 3. Please look as the bill now shown you, marked Complainant's Exhibit Newhall Bill, and state what you know about it.

(The bill is now put in evidence.)

Ans. It is a bill for making a model similar to that (Compl'nt's Exhibit Helms Patent Office Model).

Int. 4. What did you have to go by in making that model?

Ans. I wouldn't say whether I had the machine or the original drawings.

Int. 5. What, if anything, did you have to do with the manufacture of the full-sized machines, and when?

Ans. I made the drawings and the patterns; probably it was in February, 1875.

Int. 6. Please look at the bill now shown you (now put in as evidence and marked Complainant's Exhibit Newhall Bill, 2) and state what you know about it.

Ans. It is a bill for making drawings and patterns for the Union edge-setter—the Helms edge-setter.

Int. 7. That bill is dated April; the first item is in May, and the last item is in April. Are these dates correct? If not, what should they be, and how do you know?

201 Ans. The dates are not correct. That which is May should be March, and I find, by referring to my books, that that charge in May should have been the first day of March.

Int. 8. With whom did you work in getting out the drawings and patterns for that edge-setter?

Ans. James W. Maloy.

Int. 9. Did you have anything to do with building the machines except making the drawings and patterns?

Ans. Well, Mr. Maloy and myself sort of talked it over and devised how to make it, and so forth.

Int. 10. I mean after the patterns were made.

Ans. No; I had nothing further to do with it, further than making the patterns.

Int. 11. Do you know how many machines were made from those patterns at first and how many afterwards and before you made the model?

Ans. I do not.

Int. 12. Do you recollect how the edge of the sole was to be held to the tool? If so, state whether it was intended or not to have any part of the tread of the sole touch any part of the machine except the back lip of the burnishing tool.

(Question objected to as grossly misleading in fact, as the question could only properly inquire whether he knows how it was intended to have the shoe presented to the machine without embodying in the question a method of holding it.)

Ans. Well, I understood that the shoe was to be held in the hand instead of being jacked, as previously, and the edge held against the burnishing tool. Further than that I couldn't say.

Int. 13. What experience have you had in shoe machinery, and also in the manufacture of other machinery?

Ans. Well, I have been acquainted with shoe machinery ever since it was used to make shoes, and other machinery I have worked on for 35 years.

Int. 14. Please compare the two models, Def't's Ex. Helms Model and Compl'nt's Ex. Patent Office Model, with the drawings of the Helms patent and state which of them correctly represents the machine shown in those drawings.

202 Ans. The Exhibit Patent Office Model represents the drawings better than the other.

Int. 15. Is it possible or not, in your opinion, for the sole of the shoe to be held with its edge pressed evenly and firmly against the tool and with the tread of the sole pressed against the finger rest in the Patent Office model or in the drawings of the Helms patent?

(Objected to because there is no evidence that this witness has any

knowledge whatever of the art of burnishing shoe soles. He might have been acquainted with and worked upon shoe machinery all his life and yet never have seen a shoe burnished, and, there being no proof that he ever did, he does not qualify as an expert in the matter inquired about.)

Ans. It couldn't be done without injuring the bottom of the sole.

Int. 16. I do not think your answer is quite full enough. The question is, in the machines represented by the Patent Office model and in the drawings of the Helms patent, where the tread of the sole would come if the edge were pressed evenly and firmly upon the burnishing tool in that machine.

(Objected to as being in fact a fraud and a humbug, because it leaves out of the question the angle of the sole edge relative to the plane of the tread and the angle of the burnishing iron relative to the face of the hook, both of which are elements in the case, and which may be varied indefinitely, and any man of the most ordinary common sense and common skill in the art would know, and does know, that the angle of the operative face of the burnishing iron can be cut to conform to any angle to which the sole edge can be cut relatively to the plane of the shoe sole.)

Ans. Well, according to this model and the drawings there would be a space between the finger rest and the bottom of the sole.

Int. 17. What reason can you see, if any, for the differences between Defendant's Exhibit Helms Model and the drawings of the Helms patent? Before answering please mention those differences.

Ans. Well, the difference is that the finger rest on that model projects farther down than the one in the Patent Office drawing, and projects farther forward in line with the burnishing tool.

(As to the reason:) Because they are different. I don't see that I could say anything more about it without further questions.

Int. 18. In your judgment, do those differences arise from mistake or bad workmanship, or are they intentional and made for a purpose?

203 (Counsel for defendant suggests to counsel for the complainant that he first qualify his witness as an expert upon motives. Otherwise the question stands objected to.)

Ans. Well, it might be bad workmanship. I couldn't judge a man's intentions; but it is not a copy of the patent drawings.

Cross-examination by THOS. W. PORTER, Esq., of counsel for defendant:

Cross-int. 19. At the time of the incurring and rendering of these exhibit bills who constituted the firm of Turner & Newhall?

Ans. Henry Turner and J. Q. Newhall.

Cross-int. 20. In whose handwriting are these bills?

Ans. Mine.

Cross-int. 21. Were you the book-keeper of the firm at that time?

Ans. Well, I kept them in part, and Mr. Turner in part.

Cross-int. 22. In whose handwriting are the original entries in the book from which these bills were made?

Ans. In mine.

Cross-int. 23. Have you examined the books recently; if so, when, and for what reason?

Ans. I examined them on Wednesday, for the purpose of ascertaining the dates on that bill.

Cross-int. 24. You and Mr. Turner were both practical workmen at pattern-making at the time of doing the work named in the bills, and both had a bench at which you could work at such times as your other duties permitted, did you not?

Ans. We were practical workmen and worked at the bench.

Cross-int. 25. Take the period covered by these bills, from April, 1875, to Jan. 1st, 1876, and about what was the number of men you were employing in your business?

Ans. I should judge somewhere perhaps from four to eight.

Cross-int. 26. About what number of men have you employed in business since 1876, taking the average as near as you can state it?

Ans. I should say it would be about the same—sometimes not more than two, and sometimes perhaps as many as eight.

Cross-int. 27. Has the firm of Turner & Newhall continued until the present time? And, if not, please state when it terminated.

204 Ans. It does not exist at the present time; and it terminated about the 17th of December, 1881, when we were burned out; I think it was 1881.

Cross-int. 28. During the time the firm continued you and Mr. Turner together had the charge of every job that came in, and more or less consultation with the parties bringing it, and since you have been in business by yourselves you have had the personal supervision of arranging about all jobs that came in and giving them out to the workmen, and seeing that they were properly done, have you not?

Ans. I have.

Cross-int. 29. At the time of doing the work charged for in the exhibit bills there was no special reason why you should have the matter fixed in your mind more than any other job you might have brought to you, was there?

Ans. Well, no especial reason, more than I and Mr. Maloy were interested together, and having been together and taken part in the get-up of this burnishing machine. I recollect more particularly about it than I would many ordinary jobs that come in.

Cross-int. 30. You had no actual interest in this matter except to do it to the satisfaction of the parties bringing it and having it made, did you?

Ans. I had not.

Cross-int. 31. How do you account for the error of date in Exhibit Newhall Bill, 2; is it wrong on the book, or does the bill disagree with the book?

Ans. The bill disagrees with the book.

Cross-int. 32. Referring to Int. 14, in which you are inquired of in relation to the relative resemblance of Compl'nt's Ex. Helms

Patent Office Model and Def'ts Ex. Helms Model with Helms' patent drawings, please answer in detail the three following propositions: 1st, is not the back side of the burnishing iron from the shoulder to the lower end of the guard parallel with the face of the finger hook in the patent drawing? 2d, is not the same position of the burnishing iron in Compl'nt's Ex. Helms Patent Office Model oblique to the face of the finger hook and not parallel in any part? 3d, is not the same portion of the burnishing iron in the Def't's Ex. Helms Model parallel with the face of the finger hook?

205 Ans. (To 1st proposition:) I should say it was substantially; as near as I can see, it is. (To 2d proposition:) It is not exactly parallel. (To 3d proposition:) It is.

Cross-int. 33. Then in the matter of the relation of the iron to the face of the finger hook Def't's Ex. Helms Model does correspond with the Helms patent drawing, and Compl'nt's Ex. Helms Patent Office Model does not agree with the drawings. Is not this so?

Ans. In that part of it, it is so; yes.

(Adjourned.)

BOSTON, *Jan.* 23, 1886.

Cross-int. 34. Please examine Compl'nt's Ex. Helms Patent Office Model and state if you do not find the following facts: That from the lower face of the head which holds the burnishing iron to the lower end of the guard is a distance of $\frac{22}{32}$ of an inch, while the thickness of the burnishing iron, measuring from front to rear, is but $\frac{13}{32}$, and then measure the Helms patent drawing and state if distance from the lower face of the tool-holder to the lower end of the guard is not $\frac{9}{32}$, while the thickness of the iron from front to rear is $\frac{5}{32}$.

Ans. I find the dimensions of the model as stated. In the patent drawing the distance from the lower face of the tool-holder to the lower end of the guard is $\frac{9}{32}$ of an inch, and the thickness of the iron from front to rear is $\frac{5}{32}$ strong.

Cross-int. 35. Now, please examine Def't's Ex. Helms Model and Compl'nt's Ex. Helms Patent Office Model, with the irons removed therefrom, in connection with Helms' patent drawing, and noting carefully the direction of the axial line of the tool-holder sock t both in the drawing and the models, and state in which model the position and form of the finger hook most nearly corresponds with the drawing.

Ans. Well, I should say that neither one of them exactly corresponded with the drawing. I should say that the Compl'nt's Ex. Helms Patent Office Model was the nearest.

Cross-int. 36. No part of the face of the finger hook in Compl'nt's Ex. Helms Patent Office Model is parallel with the prolongation of the axis of the tool-holder socket, is it?

Ans. They are not parallel in any part.

206 Cross-int. 37. In the respects inquired about in the last question how is Def't's Ex. Helms Model?

Ans. A part of the finger rest is practically parallel with the hole.

Cross-int. 38. In the respects inquired about in the two last ques-

tions Def't's Ex. Helms Model agrees with Helms' patent drawing, while Compl'nt's Ex. Helms Patent Office Model disagrees with the drawing; is not this so?

Ans. Yes; that is so.

Cross-int. 39. From the top of the face to the lower end of the hook in Def't's Ex. Helms Model is $2\frac{1}{4}$ inches, and the straight part of the face is 1 inch, while the hook shown in compl'nt's patent drawing is $\frac{1}{32}$ of an inch from the top of the front face to its lower end, and the straight portion of the face is $\frac{7}{32}$. Please carefully measure the respective parts and state wherein you agree or disagree with the above measurements.

Ans. I should make the length from the top to the lower end of the hook in Def't's Ex. Helms Model $2\frac{1}{4}$ inches and the straight part of the face $1\frac{1}{8}$ inches. In the patent drawing I should make the length of the hook from the top of the front face to the lower end scant $\frac{1}{2}$ inch and the straight portion $\frac{3}{16}$.

Cross-int. 40. Please examine Compl'nt's Ex. Helms Patent Office Model and state whether you find any portion of the front face of the hook which is straight.

Ans. I find no part of it positively straight.

Cross-int. 41. Please examine Compl'nt's Ex. Helms Patent Office Model and state if, when the finger hook is advanced to the burnishing iron the prolongation downwards of a line coinciding with the front face of the guard would not pass to the rear of the front face of the hook, or, in other words, through the hook?

Ans. It would.

Cross-int. 42. With burnishing irons made with a width of bed varying from that shown in Def't's Ex. Compl'nt's Burnishing Iron No. 3 to that shown in Def't's Ex. Compl'nt's Burnishing Iron No. 28, and with a large number of intermediate sizes as shown in part by Nos. 14, 16, and 22 of Def't's Exhibits Burnishing Irons, must it not be certain that the matter of the distance between the front face of the hook and the back face of the iron where the adjust-
207 ment of the finger hook is limited, as in Def't's Ex. Helms Model or Compl'nt's Ex. Helms Patent Office Model, will be variable unless the iron is kept as near the finger hook as the swiveling operations of the latter will permit?

Ans. The distance between the iron and the finger hook would be variable. The only way to make a uniform distance between them would be to move the finger hook back and forth or to thicken the guard.

Cross-int. 43. You have heretofore been familiar with the practical details of burnishing sole edges with tools having a rand lip, bed, and guard, have you not?

Ans. I have.

Cross-int. 44. Please examine the sketch now shown you, marked Def't's Ex. Compl'nt's Patent Drawing Enlarged, and state what difficulty it exhibits, if any, in the matter of burnishing the sole edge, provided the burnishing tool was cut with the angles and lines as there shown and the edge were trimmed to correspond with the burnishing iron as there shown.

Ans. Under those conditions I don't see as there is any reason why it wouldn't burnish.

Cross-int. 45. Please examine the sketch now shown you, marked Compl'nt's Ex. Compl'nt's Patent Drawing Enlarged, and state if the thickness of the iron is not shown as $\frac{1}{2}$ inch from front to rear, the projection of the finger hook below the guard as $\frac{1}{8}$ of an inch, while in Compl'nt's Ex. Helms Patent Office Model the thickness of the iron is but $\frac{1}{3}\frac{3}{2}$, while the finger hook descends below the guard $\frac{1}{1}\frac{3}{6}$ of an inch.

Ans. The thickness of the iron is $\frac{1}{2}$ inch in the Compl'nt's Ex. Compl'nt's Patent Drawing Enlarged, and the projection of the finger hook below the guard is $\frac{1}{8}$ strong. In Compl'nt's Ex. Helms Patent Office Model the thickness of the iron is $\frac{1}{3}\frac{3}{2}$, and the finger hook descends below the guard as near $\frac{1}{8}$ as I can measure it.

Cross-int. 46. Where the prolongation of the line of the front face of the guard would pass through the finger hook, as in Compl'nt's Ex. Helms Patent Office Model, is there any reason why the sole edge may not be burnished while its bottom or face touches the finger hook, provided the edge of the sole and the operative
208 part of the iron are cut so as to coincide, as shown in Def't's Ex. Compl'nt's Patent Drawing Enlarged and Def't's Ex. Compl'nt's Patent Drawing Enlarged, No. 2?

Ans. No reason why not. It is evident.

Cross-int. 47. Suppose an iron like that shown at C in the drawings of the Helms patent, but with a bed of such width that the iron would be close to the hook, would not the prolongation of the line of the front face of the guard pass down through the hook or in rear of its front face?

Ans. I don't think it would pass through the hook; I should say it would come right on the surface of the hook if the guard were cut to a knife edge.

Cross-int. 48. Please examine the thing now shown you, marked Def't's Ex. Fullerton Finger Hook, and state if the same was made by you in your shop for use in the Helms machine.

Ans. Well, I couldn't swear to this special pattern, but I have no doubt it was, for I have done all the work on the Helms machine in its first stages, and I have also made finger hooks for the Helms machine similar to this, several of them.

Cross-int. 49. The small stem or round part about $\frac{1}{4}$ of an inch in diameter and $\frac{3}{8}$ inch long projecting from the face was intended for a centering pin to be used in turning the shank, and was then to be cut off, was it not?

Ans. It was.

Cross-int. 50. The object of this was so that there might be no centre hole formed in the face which would remain after the hook was completed, was it not?

Ans. Probably that was it. There are various objects for a center like that.

Redirect examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 51. What experience, if any, have you had in the practical manufacture of boots and shoes?

Ans. I worked on boots and shoes for eight years. I have made shoes from the tacking on of the soles to the gumming of the uppers. I made edges with both cold and hot kit.

Int. 52. Can you tell where the vibrating burnishing tool
209 would come when the finger rest like Def't's Ex. Fullerton Finger Hook was used in the Helms machine? Please explain as to that.

Ans. The guard would come on that surface. I don't know what you would call it. I mean the shoulder below the centering pin.

Int. 53. State whether you ever yourself burnished sole edges or ever saw any burnished upon the Helms machine.

Ans. I never burnished any myself on the Helms machine, but I have seen others burnish them at Lynn.

Int. 54. How did the face or tread of the sole stand in relation to the front of the finger rest in the shoes you saw burnished on the Helms machine?

(Objected to as an attempt to introduce new matter, which is not now admissible, irrelevant, impertinent, and out of time.)

Ans. It stood away from the finger rest. The man's fingers were between the finger rest and the shoe.

Int. 55. Please explain where the man's fingers would be when using a finger rest from the pattern, Exhibit Fullerton Finger Hook.

(Objected to as vague and indefinite and incomplete, as the various other parts of the machine would control the nature of the answer to be given.)

Ans. Well, one or two of his fingers would be on the back side of the hook—the corrugated side; the others would rest upon the other side of the hook and the sole of the shoe.

Int. 56. What are those corrugations for in Ex. Fullerton Finger Hook?

Ans. To prevent the fingers from slipping.

Int. 57. When you have seen the Helms machine used how was the tool heated?

Ans. By gas.

Int. 58. Then you never saw one of the Helms machines of the pattern shown in the Helms Patent Office model and drawings in use, did you?

Ans. I never did, to my knowledge; not in use.

Int. 59. Do you recollect when it was that the change was made from steam heating and heating by gas in the Helms machine?

210 Ans. I remember the circumstance, but I could give no idea of the time.

J. Q. NEWHALL.

Attest: WM. A. COPELAND,
Special Examiner.

Second Deposition of Joseph P. Livermore.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

BOSTON, *January* 25, 1886.

Int. 1. What is your name, and have you before testified in this case?

Ans. Joseph P. Livermore; I have.

Int. 2. Please compare Exhibit Helms Patent Office Model with the drawings of the Helms patent and state wherein they differ materially, if at all.

Ans. I have compared the Exhibit Helms Patent Office Model with the drawings of the Helms patent and find no material difference. The model appears to me to correspond exactly with the drawings, but, being of wood, it probably does not contain the steam chamber, although the position of the chamber is indicated by lines cut in the outside of the model. I cannot see the connection between the main shaft and the tool-carrying head in the model, but have no doubt that it is the same, as the external parts all correspond.

Int. 3. State whether it is possible or not, in your opinion, to burnish sole edges upon the machine shown in the Helms Patent Office model and in the Helms patent drawings with any part of the sole in contact with any part of the finger rest, giving your reasons.

(Objected to as altogether immaterial, the question in controversy being whether or not complainants have described a machine adapted and *and* intended to be used with the face of the sole resting
211 upon the finger hook when the edge is burnished, and not whether they have or have not fail- to show such a machine in their drawing and model.)

Ans. In my opinion it is not possible to burnish sole edges upon the machine shown in that model or drawing with any part of the sole in contact with any part of the finger rest, for the following reasons: First, the guard of the tool lies between the bed or burnishing part of the tool and the nearest part of the finger rest, thus precluding contact between the finger rest and part of the sole near the tread corner, and, second, because the finger rest is curved back or falls away from the rear side of the guard of the tool, so that if a shoe were held with the sole edge in contact with the bed of the tool across the entire width of the sole edge and bed of the tool the face of the sole would be a considerable distance in front of the front face of the finger rest below the tool. The sole edge must be in contact and bear with substantially uniform pressure against the bed of the tool for its entire width in order to insure proper burnishing action, and in order that the workman may hold the shoe with the edge in such contact the part of the sole below the tool must be free to move backward and forward until such contact is attained,

which could not be done if this portion of the sole were gauged or held in contact with a rigid rest or guide.

Int. 4. Now, please examine Def't's Ex. Helms Model and compare it with the drawings of the Helms patent and state how the Def't's Ex. Helms Model differs materially, if at all, from the drawings of the Helms patent, and in case you find any material difference between Def't's Ex. Helms Model and the patent drawings please state whether that difference is, in your judgment, fairly accounted for by accident or bad workmanship or whether it is intentional and by design.

(Objected to as an evident attempt to substitute himself and his own theories for what should be the unbiased statements of the witness; and, further, the question seeks to elicit the opinion of the witness as to the motives of the maker of the model, and the witness is not qualified as an expert on the motives of the model-maker.)

Ans. I have examined Def't's Ex. Helms Model and compared it with the drawing of the Helms patent. The general construction and shape of the model does not differ materially from
212 the patent drawing. There is, however, a large difference in the shape of the finger hook and its position with relation to the frame-work of the machine and to the burnishing tool. In the patent drawing the finger hook is set back a considerable distance from the tool, so that there is a space between the tool and the finger hook of a width about equal to that of the thickest part of the guard of the tool, while in the Def't's Ex. Helms Model the finger rest, when set back as far as possible in the frame of the machine, almost touches the back of the tool, the space being scarcely greater than the thickness of a common sheet of writing paper. In the patent drawing the front face of the finger rest begins to curve back at the lower end of the tool, while in the model the front face of the finger rest is substantially straight and in line with the back of the tool for the distance of a half an inch or more below the lowest point of the tool before it begins to curve back. The difference between the finger hook and adjacent parts of the model and the corresponding parts of the patent drawing is, in my judgment, altogether too great to be accounted for by accident or bad workmanship on the part of a workman competent to construct such a model if he were attempting to follow*ing* the patent drawing or to make a model that should substantially represent or correspond with the said drawing.

Cross-examination by T. W. PORTER, Esq., of counsel for defendant:

Cross-int. 5. Please compare Compl'nt's Ex. Helms Patent Office Model with Helms' patent drawings and state if you find any dissimilarities between the two.

Ans. I find a slight difference in the upper part of the finger hook above the lower end of the tool. In the patent drawing the part of the finger hook directly opposite the back of the tool is apparently

exactly parallel with the back of the tool, while in the model it inclines toward the tool in going from the lower to the upper end thereof, so that the uppermost part of the front face of the finger hook is somewhat nearer the tool than the part opposite the tip of the guard. I should think that the space between the back of the tool and the front of the finger hook was slightly greater in the model than in the drawing, though I don't feel sure of this, owing to the difference of scale. I see no further differences other than those previously mentioned by me.

213 Cross-int. 6. Owing to the fact that the front face of the finger hook in Compl'nt's Ex. Helms Patent Office Model commences at the upper part thereof to retire from the rear face of the burnishing iron and so continues to retire till you reach the lower end of the guard, as stated in your last answer, does not that portion of the face of the hook below the guard necessarily and in fact retire more rapidly than in the Helms patent drawing?

Ans. Not necessarily; and as a matter of fact I cannot detect that it does retire more rapidly below the tool. The curve of the finger hook below the point of the tool does not depend on the part above, and by slightly cutting off the upper front end of the finger hook in the Patent Office model the part lying along the back of the tool could be made parallel therewith without making any change in the part of the finger hook below the tool.

Cross-int. 7. Is not the curve of the front of the hook in this model an accelerated curve commencing at the top?

Ans. It does not appear so to me. As near as I can tell by my eye it curves up to about the lower end of the tool and it is tangent the rest of the way. (In Fig. 2 of the drawing the upper part does not seem to be exactly tangent, and it appears to me that the angle of a tangent to the front face of the hook at the point opposite the lower end of the tool is the same in the drawing and model, as well as the curvature of all of the finger hook which lies below the end of the guard of the tool.)

(All the answer after the word "way" objected to as not called for by the question and a waste of time, and the witness is requested to answer every question as concisely as he can and to give no reasons unless specially asked for.)

Cross-int. 8. Is any part of the front face of the hook in Compl'nt's Ex. Helms Patent Office Model a straight line?

Ans. On testing it with a straight-edge I find that it is curved throughout.

Cross-int. 9. Is the front face of the hook in the Helms Patent Office model a true curve—that is, the arc of a true circle?

Ans. It is not the arc of a circle.

Cross-int. 10. Which is the least curved portion—the upper or the lower?

Ans. The upper *position* is least curved—that is, has the longest radius of curvature.

214 Cross-int. 11. As the front of the hook in the Helms Patent Office model is not a true curve, and as the least curved por-

tion is at the top, is it not plain that the curvature is accelerated as you pass down the hook, else how could you pass from the curve of a greater to one of lesser radius?

Ans. It is true that the curvature increases or is accelerated as you pass from the top to the bottom of the hook.

Cross-int. 12. And if the curve in the Helms Patent Office model commences at the top end of the face and is thus accelerated as it descends, while the curve in the Helms patent drawing commences at the lower end of the guard, is it not a plain matter, both of geometry and mechanics, that the rearward retirement of the curve of the hook must, directly below the guard, be greater in the model than in the drawing?

Ans. It is not. The radius of curvature may be the same opposite the guard.

Cross-int. 13. Could the radius opposite the lower end of the guard in such case be the same if the hook in the model and drawing were alike in form?

Ans. If I understand the question, yes.

Cross-int. 14. Do you mean to say, in substance, in your last answer, that the hook in the Helms Patent Office model and in the Helms patent drawing can be alike in form, and yet the curve of the hook in the drawing commences at the lower end of the guard, while the curve in the model commences at the top face of the hook which is above the lower end of the guard and thence descends by an accelerated curve, as stated in your former answer?

Ans. I did not say that they were the same in form, but that if they were the same they could have the same radius of curvature opposite the guard.

Cross-int. 15. Do you think that they could be the same in form under the conditions named in the last preceding question?

Ans. The last question mentions a difference in curvature in the upper part of the hook above the guard of the tool. Of course, this is a difference in form in the two hooks.

Cross-int. 16. Please examine Compl'nt's Ex. Helms Patent Office Model, as now shown you, with the hook advanced near the
215 burnishing iron, but allowing a swiveling motion of the lever, and state if the vertical line of the front face of the guard, if projected downwards, would not pass through the hook, or, in other words, is not the front of the hook in advance of the downward prolongation of the line of the guard?

Ans. It would, and it is.

Cross-int. 17. If the iron and hook were thus positioned, and the bed of the iron was cut at such angle as to coincide with the bed of the sole edge when the latter touched the bed of the iron, when the face of the sole touched the face of the hook and the face of the guard, could not the sole be then burnished?

Ans. If a sole could be made to fulfil all those conditions in all parts of its edge that particular sole could, in my judgment, be burnished.

(Noon recess.)

Cross-int. 18. Please examine Compl'nt's Ex. Helms Patent Office Model in connection with Helms' patent drawing and state if the front face of the hook in the model has the same relation in any of its parts to the axial line of the burnishing iron that is shown in the Helms patent drawings.

Ans. As near as I can determine, the front face of the hook in the model is in substantially the same relation to the axis of the burnishing iron as in the patent drawing, except that the upper part above the lower end of the burnishing tool inclines forward somewhat more in the model than in the drawing.

Cross-int. 19. You have, in answer to a former direct interrogatory, spoken of the distance which the straight part of the front face of the finger hook in Def't's Ex. Helms Model extends below the guard of the iron. Was that opinion expressed with reference to the iron shown in the model or not?

Ans. It was.

Cross-int. 20. Are you or not aware that burnishing irons vary in vertical extent of the square position or body thereof?

Ans. I am aware that they do.

Cross-int. 21. You have spoken in answer to a former direct int. of the nearness of the finger hook to the burnishing iron in Def't's Ex. Helms Model. Was that opinion expressed with reference to the iron now shown in the model?

216 Ans. It was.

Cross-int. 22. Are you or not aware that the blanks from which burnishing irons are cut are of a variety of sizes?

Ans. I am.

Cross-int. 23. Must not, then, in any machine of the Helms pattern, however constructed, the question of the distance between the iron and the finger hook and the vertical relation of the straight part of the hook (if it has a straight part) to the lower end of the bed be a relative one—that is, have relation to the vertical extent of the iron and the thickness from front to rear?

Ans. Of course the distance and extent of the different parts of the finger hook from the bed of the tool would depend upon the size of the burnishing iron or the position of the different parts of the burnishing iron relative to the frame of the machine.

Cross-int. 24. Please examine Helms' patent drawing and note that the distance across the square portion of the iron from front to rear is materially less than the distance from the lower end of the guard to the shoulder of the iron, while in Def't's Ex. Helms Model these dimensions are reversed, the distance from front to rear across the iron being $\frac{7}{8}$ of an inch, while the distance from the shoulder to the lower end of the guard is $\frac{3}{4}$ of an inch. Now, if the iron in Helms' patent drawing were shown in the same proportion as in def't's model do you think there would be any space between the iron and the finger hook; if so, how much?

Ans. If the length of the head part of the iron in the Helms patent drawing up and down were retained and its width increased so as to be in the same proportion as that of the iron represented in Def't's Ex. Helms Model and the increase was distributed equally

at the front and rear with relation to the axis of the tool shank, the tool would, I believe, either touch the front face of the finger hook or extend even further back.

Cross-int. 25. Then, in such case, there would be no capacity for adjustment of the finger hook, would there?

Ans. There would not.

Cross-int. 26. Please examine Def't's Exhibit Complainants' Patent Drawing Enlarged and state, first, is there anything impracti-
217 cable about the sole edge or the angle thereof in relation to the tread of the sole; second, is there anything impracticable in a burnishing iron formed like that shown; third, is there anything impracticable about the form of the finger hook or its relation to the burnishing iron; fourth, is there anything impracticable about the relation of the three parts, each to the others?

Ans. In answer to the first question I see nothing impracticable or unusual in the sole edge or its angle to the tread of the sole; and, second, I see nothing impracticable in the iron; and, third, in my opinion the lower part of the finger hook extends too far forward with relation to the shoe and burnishing tool; and, fourth, the relation of the finger hook to the tool and shoe is not practicable for the operation of burnishing for the reason that if the leather were somewhat softer on the tread corner than on the rand corner, or if for any reason it should be necessary to bring more pressure on the tread corner, the finger hook would interfere with the swinging backward of the shoe, so that the tread corner of the sole could not be brought up to or pressed against the bed of the tool.

Cross-int. 27. Please examine Compl'nt's Ex. Compl'nt's Patent Drawing Enlarged in connection with Compl'nt's Ex. Helms Patent Office Model and state if, with the several parts constructed as there shown or if the model were enlarged to a scale full size, would it be possible to have the shoe, iron, and hook in the respective relations shown in the drawings when burnishing that shoe upon the model or enlarged machine.

Ans. In my opinion it would be possible to have the shoe, iron, and hook in the relation shown in the drawing while burnishing the shoe upon a machine like the model or the model enlarged.

Cross-int. 28. Please examine Compl'nt's Ex. Helms Patent Office Model and state if the finger hook can be so arranged therein that a downwardly projecting line coincident with the front face of the guard will not touch the face of the finger hook.

Ans. As near as I can determine it can. The front face of the guard is not exactly straight, but the line coinciding with its general direction passes in front of and so as not to touch the front face of the finger hook when the latter is set back in the same position as shown in the patent drawing.

Cross-int. 29. Please examine Compl'nt's Ex. Compl'nt's
218 Patent Drawing Enlarged and state if the relation of the front line of the guard (extended downwards) to the front face of the hook is not radically different to that shown in Helms' Patent Office model when the hook is in the most rearward position.

Ans. I cannot discover any material difference. The front face of

the guard appears to be at a somewhat greater angle to the bed of the tool in the model than in the drawing; but, as near as I can determine, the line of its front face extended downward bears about the same relation to the front face of the finger hook when set furthest back that it does in the Compl'nt's Ex. Compl'nt's Patent Drawing Enlarged, although coming, perhaps, a trifle nearer to the finger hook in the model than in the drawing.

Cross-int. 30. Please state what distance in front of the finger hook in Compl'nt's Ex. Compl'nt's Patent Office Model the downwardly projected line of the face of the guard would pass.

Ans. I should say about $\frac{1}{32}$ of an inch, although I cannot determine exactly, owing to the unevenness of the front face of the guard in the model.

Cross-int. 31. In answer to a direct int. you expressed the opinion that the straight part of the front of the hook in Defendant's Ex. Helms Model was of too great length to compare with Helms' patent drawing. Please state in what proportion the straight part in the model should be reduced, in your opinion, to compare with the drawing.

Ans. I should consider that the curvature ought to begin about half an inch farther up in the model.

Cross-int. 32. Please state if (employing the straight front part of the hook as a base line of measurement) you do not find the following to be true: That the whole length of the hook in Def't's Ex. Helms Model, from the top of the face to the lower end, is not $2\frac{1}{4}$ inches, that the straight part is one-half this, or $1\frac{1}{8}$ inches, that the length of the hook in Helms' patent drawing is $\frac{15}{32}$ of an inch, and the straight part is $\frac{7}{32}$.

Ans. I have measured these parts and find the measurements to be as given in the question.

Cross-int. 33. Then if the straight part of the hook was extended the thirtieth part of the whole length of the hook the relations of the straight and curved parts in Def't's Ex. Helms Model
219 and in Helms' patent drawing would be identical in their relative extent, would they not?

Ans. They would.

Cross-int. 34. Referring again to Def't's Ex. Compl'nt's Patent Drawing Enlarged, is there any reason why the sole may not be burnished when the shoe, hook, and iron are in the relations there shown except, as stated by you, that the sole edge may be of unequal density in its parts as measured across the line of the bed?

Ans. There is no other reason why that particular sole shown in the drawing might not be burnished, but to burnish a number of shoes or to use a machine having the parts in the relations shown would require that in every shoe the angle of the edge to the face of the sole should be exactly the same and the density of the leather uniform across the entire width—conditions that, in my opinion, cannot be attained in actual practice.

Cross-int. 35. Please compare Def't's Ex. Helms Model with Compl'nt's Ex. Compl'nt's Machine and state whether or not, in your opinion, the model represents a full-size Helms machine.

Ans. In my opinion the Def't's Ex. Helms Model is about the size of a full-sized working machine and represents such a machine except in the relation of the finger hook to the burnishing tool. In this respect the finger hook appears to me too far forward and too low down, with relation to the tool, to represent the Helms machine.

Cross-int. 36. Taking the Def't's Ex. Helms Model as a basis and as a full-size machine, and noting that from the rear of the frame to the front of the hook is about eleven inches, while Compl'nt's Ex. Helms Patent Office Model is scant two-thirds the same size at the same place, that the front face of the finger hook in def't's model extends up within $\frac{7}{16}$ of an inch of the head, while in compl'nt's model it extends up within $\frac{5}{16}$ of an inch—now, taking into consideration the relative sizes of these models, is there any practical difference between the two in the matter of the hook being high up or low down?

Ans. There is not, so far as the relation of the finger hook to the frame-work of the machine is concerned.

Cross-int. 37. What other permanent relation can it have when you consider that narrow burnishing irons are often long, and wide irons are often short, as represented by Def't's Ex. Compl'nt's
220 Burnishing Irons Nos. 3, 14, 16, 22, and Def't's Ex. Def't's Burnishing Iron 28?

Ans. It has no other permanent relation.

Cross-int. 38. Now, please take Compl'nt's Ex. Helms Patent Office Model, and observing its relative size to a full-sized machine, as shown in D'f't's Ex. Helms Model, and taking also the several exhibit burnishing irons named in the last question, and state if the largest of these irons were reduced by scale to the relative size of the Helms Patent Office model would there be any space at all between the back of the iron and the face of the finger hook when the latter was in its most rearward position.

Ans. There would not if the shank of the tool were midway between its front and rear faces. Such a tool could not be used in the Helms machine unless thrown to the front of its shank or provision is made to set the finger hook still further back with relation to the frame-work of the machine.

Cross-int. 39. If it were proposed to operate the machine as shown in the Def't's Ex. Compl'nt's Patent Drawing Enlarged and in Def't's Ex. Compl'nt's Patent Drawing Enlarged, No. 2, adjustment of the hook would be necessary to the extent shown as practicable in Compl'nt's Ex. Helms Patent Office Model and in Helms' patent drawing in order to adjust the hook to the various well-known sizes of burnishing iron, would it not?

Ans. It would not only have to be adjusted to each size of iron, but to each individual shoe, if the shoes varied at all, in the angle of edge to face of the sole, and, further than this, to each part of each shoe if the angle varied at different points on the edge or the density of the leather varied at different parts of the edge of the sole.

(Answer objected to as not called for by the question and as being argumentative.)

Cross-int. 40. Please state, if you will, as cross-int. 39 asks, whether under the conditions there named it would or would not be necessary in a machine as there specified to have an adjustment of the hook to the extent represented in Helms' patent drawing and Compl'nt's Ex. Helms Patent Office Model if the machine were to be used in the manner inquired about.

Ans. I do not see that the adjustment would necessarily
221 have to be made for the change in size of burnishing tool, but believe that if the machine would operate at all in the manner shown in the Def't's Ex. Compl'nt's Patent Drawing Enlarged and as shown at *b* in Def't's Ex. Compl'nt's Patent Drawing Enlarged, No. 2, it would be only by constantly adjusting the hook in accordance with the angle of the edge and density of the different parts of the edge at each point in each shoe.

(Answer objected to as not responsive.)
(Adjourned.)

BOSTON, *Jan.* 27, 1886.

Cross-int. 41. The last question seems not to have been fully understood by you. The same question is now put in substance, but varied in form as follows: Suppose Complainant's Exhibit Helms Patent Office Model was enlarged by true scale in all its parts to the size of Defendant's Exhibit Helms Model, would the adjustment of the hook be sufficient to admit in the machine thus enlarged a burnishing iron of the size of Defendant's Exhibit Defendant's Burnishing Iron No. 28 after the iron was reduced on the back side so that the guard would come to a point like the iron now shown in the model?

Ans. I think it would.

Cross-int. 42. Suppose the bed in Defendant's Exhibit Defendant's Burnishing Iron No. 28 was enlarged—that is, widened so that the guard was as near the back edge of the iron as it could be—would there then be room in a machine like that specified in the last preceding question to use such an iron?

Ans. I think there would not.

Cross-int. 43. A burnishing iron like that specified in the last question would be something less in width than the largest iron in use, would it not?

Ans. I am not sufficiently familiar with irons in use to answer positively. Such an iron would have a bed much wider than the average thickness of soles commonly worn. It would be fully three-quarters of an inch wide.

Cross-int. 44. Are you not able to state from your knowledge of this art that burnishing irons are varied in their number consec-
222 utively from three to forty-eight, three being the smallest and forty-eight the largest?

Ans. I have been informed and see from the Defendant's Exhibits Complainant's Burnishing Irons Nos. 3, 14, 16, 22, and 28 that

the irons are numbered to correspond with the widths of the beds in forty-eighths of an inch, but I do not know the extreme limits of the sizes made.

Cross-int. 45. In view of these facts and assuming that you use an iron no larger than could be cut upon Defendant's Exhibit Complainant's Burnishing Iron No. 28, and that the finger hook were kept near the iron, would not all the adjustment be requisite for such purpose that could be obtained in a full-sized machine corresponding to Complainant's Exhibit Helms Patent Office Model?

Ans. The finger hook would have to be set back as far as can be to admit the large-sized iron and might be moved forward or adjusted to place it close to small-sized or narrow irons. But it might be adjusted further forward than the back of the narrowest iron so that the adjustment up to the back of the narrowest iron would not exhaust the capability of adjustment of the finger hook in the framework of the machine.

Cross-int. 46. In using the Helms machine is not the limit of adjustment of the finger hook the shoulder of the frame in rear of the hook on the one hand, and the smallest iron used in the machine on the other hand?

Ans. It is. It cannot be adjusted beyond these points when the machine is in an operative condition.

Cross-int. 47. Now, assuming your last answer to be correct, and that it was desired to use the machine with the finger hook close to the iron, would not all the adjustment in a full-sized machine like Complainant's Exhibit Helms Patent Office Model be requisite in order to use the machine as herein stated, but with irons varying in size from three to twenty-eight, as shown in Defendant's Exhibits Complainant's and Defendant's Burnishing Irons?

Ans. All the adjustments that could be made with a burnishing tool in the machine would be required to place the finger hook close to the different sized tools (it being understood that the amount of each adjustment was the same as the difference in thickness
223 of the iron. Of course, the hook could be placed in positions intermediate between the backs of the different sized irons so that its capability of adjustment between the limits stated would not be exhausted by the different sizes of iron. In other words, the finger hook should be capable of being placed in any position between the limits stated in interrogatory 46 in order to set it close to any iron that might be used).

(All the foregoing answer after the word "tools" objected to as being superfluous and irresponsive.)

Cross-int. 48. If a full-sized machine corresponding to Complainant's Exhibit Helms Patent Office Model is used with the different sized irons, ranging from the smallest up to the largest that could be used in it, the relation of the hook to the iron cannot be maintained in uniformity in any other manner than to have the iron close to the hook. Is this so?

Ans. Its distance from the back of the iron can be kept the same only in this way.

Cross-int. 49. And its distance (the hooks) from all other parts of the iron can be maintained more nearly uniformly in this way than any other, can it not?

Ans. I should say not, for the reason that the position of the polishing surfaces of the irons relative to the backs of the irons varies.

Cross-int. 50. In a former answer you stated that if the point where the straight part of the finger hook in the Helms patent drawings terminates and the curved portion commences were moved downwards one-thirtieth of the length of the hook that the relative extent of its straight and curved portions would conform to the proportions of the hook shown in Defendant's Exhibit Helms Model. Now, in order to change the hook in Defendant's Exhibit Helms Model to correspond with Helms' patent drawings, it would be necessary to shorten the straight portion about a thirty-second of one inch, would it not?

Ans. No; it would be necessary to shorten it something over one fifteenth of an inch—that is, one thirtieth of the entire length, which is two and a quarter inches.

Cross-int. 51. Referring to your answer to interrogatory 4, and assuming your last answer to be correct, do you think that the discrepancies in the hook in Defendant's Exhibit Helms Model
224 and in Defendant's Exhibit Patent Office Drawing is as stated in your answer to interrogatory 4, "altogether too great to be accounted for by accident or bad workmanship on the part of a workman competent to construct such a model if he were attempting to follow the patent drawing or to make a model that should substantially represent or correspond with the said drawing"? And, in giving your answer, please bear in mind that by the records in this case the model has been an exhibit therein for nearly four months, subjected to the drying atmosphere of heated offices, and that by the peculiar form of the hook and the lineal direction of the grain of the wood therein the shrinkage of the hook will tend most strongly to shorten the curved portion thereof.

Ans. In my answer to interrogatory 4 I said that "in the patent drawing the front face of the finger rest begins to curve back at the lower end of the tool, while in the model the front face of the finger rest is substantially straight and in a line with the back of the tool for the distance of a half an inch or more below the lowest point of the tool before it begins to curve back. The difference between the finger hook and adjacent parts of the model and the corresponding parts of the patent drawing is, in my judgment, altogether too great to be accounted for by accident or bad workmanship." I still hold to this opinion, that the difference in relation between the finger hook and tool in Defendant's Exhibit Helms Model and the relation between the finger hook and tool in the patent drawing is too great to be accounted for by accident. The finger hook and the tool are the main operative parts of the machine, and the proper relation of these parts is vital to the operation of the machine, while the exact size or shape of either of the operative parts or its relation to the frame-work of the machine is immaterial. The discrep-

ancy between the size and the shape of the finger hook with relation to the frame-work of the machine in the model and drawing is not, in my judgment, greater than could be accounted for by accidental inaccuracy on the part of the workman who made the model, but the discrepancy between the relation of the finger hook to the tool (the other operative part of the machine) in the model and drawing is too great to be accounted for by accident, and must, in my judgment, have been an intentional deviation from the drawing.

225 Cross-int. 52. Is there any rule or standard in relation to the length of the burnishing iron in any given case? If so, please state the rule.

Ans. I do not know of any definite rule in relation to the length of the iron, [but in order to be used in a Helms machine the burnishing part of the iron must be in proper relation to the finger hook, so that the latter would come in proper position for the operator to seize it with his finger while grasping the fore part of the shoe in his hand and holding the edge of the sole against the entire width of the bed of the burnishing tool, and the finger hook must be in such position with relation to the bed of the machine as to permit the shoe to be placed with its edge in contact with the tool across its entire width. A relation that will fulfill these conditions would be a proper one, but the exact position of the one part with relation to the other could not, in my judgment, be brought within a definite rule, but would depend largely on the size of the hand of the operator, who could set the finger hook to suit himself. The parts are shown in such relation as I have described in the drawing of the Helms patent, which represents the finger hook in such position with relation to the tool that an average workman could engage it with his finger while grasping the fore part of the shoe and presenting its edge properly to the tool.]

(Counsel for defendant objects to all the answer included in brackets as a production entirely within the domain of counsel and not of witness; as unwarranted by the question and an abuse of the witness's position, in view of the fact that counsel for the defendant has heretofore expressly requested him to give his answers as concisely as possible, and to refrain from giving reasons, or what he might suppose to be reasons, unless the same were expressly called for, and the witness is again admonished that while a party employing him may be able to pay him for any unnecessary waste of time that the defendants desire to be spared the needless waste of time and expense incurred by labored and irresponsive answers.)

Cross-int. 53. Please examine Defendant's Exhibits Complainant's Burnishing Iron No. 3, No. 14, No. 16, No. 22, No. 28; Complainant's Sunk Channel Iron, Complainant's Bevel-Edge Iron, and Defendant's Exhibit 6, Burnishing Tool, and state if the iron in Defendant's Exhibit Helms model is not as long as the average of these several exhibits, being in fact longer than all but two of them.

226 Ans. I find this to be the case, measuring from the tip of the guard to the top of the square head of the iron.

Cross-int. 55. Now please examine Helms patent drawing and state if the retirement of the hook from a line coincident with the straight part of its face is not eight thirty-seconds ($\frac{8}{32}$) of an inch, while the length of the hook, measured by the same line as a base, has been pronounced by you to be fifteen thirty-seconds ($\frac{15}{32}$) of an inch. Then examine Complainant's Exhibit Helms Patent Office Model and as the front of the hook has no straight part, employ the axis of the burnishing iron as a base line and state if the length of the hook as measured in the drawing is not thirty-six thirty-seconds ($\frac{36}{32}$) of an inch, while its retirement to the rear is thirty thirty-seconds ($\frac{30}{32}$) of an inch.

Ans. I find the measurements taken from the upper figure in the drawing and from the Patent Office model to be as given in the question, as nearly as I can determine.

Cross-int. 56. How much greater, speaking proportionally, is the retirement to the rear or curvature of the hook in Complainant's Exhibit Helms Patent Office Model than that shown in Helms patent drawing?

Ans. In the drawing the retirement is barely over one-half ($\frac{1}{2}$) the length, while in the model it is five-sixths ($\frac{5}{6}$) of the length—that is, about one-third ($\frac{1}{3}$) greater in the model than in the drawing.

Cross-int. 57. In Defendant's Exhibit Helms Model the straight part of the hook extends down about one-thirty-six ($\frac{1}{36}$) of its whole length too far, as you measured it, does it not?

Ans. One-thirtieth ($\frac{1}{30}$), as I remember it.

Cross-int. 58. Then the variation in the matter of the proper proportion of the straight and curved parts of the hook in Defendant's Exhibit Helms Model is one-tenth ($\frac{1}{10}$) as great as is the variation between Helms patent drawing and Complainant's Exhibit Helms Patent Office Model, in relative lengths and rearward curvature of the hooks, is it not?

Ans. The variation of the finger hook itself in the Defendant's Exhibit Helms Model from the Patent Office drawing, in the particular mentioned, is about one-tenth ($\frac{1}{10}$) as great as that of the Patent Office model from the drawing in the particulars mentioned.

227 Cross-int. 59. If a Helms machine were employed with a burnishing iron turned in a lathe so as to constitute a true circle which was secured to a shank inserted in the tool-carrier, and the finger hook was an L-shaped iron—that is, an iron having two straight arms at or about a right angle—please state whether or not the sketch now shown you would fairly represent the parts as thus employed in the machine, leaving out the question of whether the finger rest was or not at the proper distance from the burnishing iron.

Ans. I should say the sketch represents a burnishing tool and finger hook such as described in the question in an organization like that of the Helms machine.

(The sketch referred to in preceding interrogatory and answer is

now introduced in evidence and marked "Defendant's Exhibit Helms' First Machine, W. A. C., special examiner."

The complainant's counsel objects to the way the exhibit is marked, having no doubt the drawing is purely fanciful and not a representation of Helms' first machine.

The counsel for defendants states that the exhibit is thus marked in view of the positive testimony of Fullerton in relation to the hook and Helms, the inventor, in relation to the iron, and the testimony of the present witness.)

Cross-int. 60. Please examine the drawing now shown you, marked "Defendant's Exhibit Patent Scale Drawing, W. A. C., sp'l ex'r," and state if the same does or not correctly represent the Helms patent drawing enlarged to two and two-thirds ($2\frac{2}{3}$) the size thereof.

Ans. I have examined the drawing, and, as nearly as I can determine, find it to be a substantially correct representation of Helms' patent drawing enlarged to — two-thirds ($2\frac{2}{3}$) the size thereof.

(Defendant's counsel here introduce in evidence the exhibit referred to in preceding interrogatory and answer, marked "Defendant's Exhibit Patent Scale Drawing, W. A. C., spec'l ex'r.")

(Adjourned.)

BOSTON, *Jan.* 28, 1886.

Direct examination resumed:

Int. 61. Please look at the drawing now shown you (put in evidence and marked Exhibit Helms' Lower Figure Enlarged)
228 and state whether it correctly represents the lower figure 2 of the drawing of the Helms patent; and, if so, how much enlarged.

(Objected to as not in time, and therefore not admissible, as neither party can have the right to introduce exhibits in such order as to deprive the other party of the right to call witnesses to testify in relation to the same, and, as defendants have closed, the introduction of any exhibits by complainants at this stage would deprive defendants of the right to call witnesses to testify in relation thereto.)

Ans. I have examined the drawing Helms' lower figure enlarged, and find that it correctly represents the left-hand portion of the lower figure 2 of the patent drawing, and that it is four times enlarged.

JOS. P. LIVERMORE.

Attest: WILLIAM A. COPELAND,
Special Examiner.

229 DEFENDANT'S EXHIBIT HELMS LETTER A.

PROVIDENCE, R. I., *Oct. 7th*, 1885.

Friend Ashe.

I suppose You will think strange of me, for neglecting to have met You last evening as agreed upon & therefore I must exsplain to You. one hour after I saw you, I met my wifes Brother

at Parker House. he was on his way to Providens & nothing wold do but I must go with him, so we left on the 8.30 Train, I saw the Dr. but he did not want to see me & therefore have not a ting to relate in that direction. I am now ded to the Dr, my evidens as as given in Your case Yesterday has riled the waters. I shall start for home today I will write to You again as soon as I get home & state particulars

Yours Respectfully
C. H. HELMS.

DEFENDANT'S EXHIBIT HELMS LETTER B.

Po'keepsie Oct 9th 1885

Friend Ashe.

I arrived home safe. my letter to you on the 7th will explain why I was not at the Parker House as to the Dr. I saw him at A distens & sent word to him, that I wanted to see him in the Coat Room; but He sent A waiter Boy for his Coat. & that gave me to understand that He did not care to see me, and so of cors I made no further efort to see Him. I have become not a little interested in Your Suit with the Dr, who will go his length to win but if the Point You have established in my evidens, is the Point in Your behalf then I doubt the Drs. success. I of cors have not Posted myself as to the Taman Patents & others in the line, hope You will write to me often & let me know how matters Progress. & if I can do or say anything to Benefit You I will do so.

Yours Truly,
C. H. HELMS.

154 Montgomery st
Poughkeepsie N. Y.

P. S. make no mention of the letters I write to You.

230 DEFENDANT'S EXHIBIT HELMS LETTER C.

Po'keepsie, Oct 22d 1885

Friend Ashe.

I must confess that I am becoming not A little interested in Your Suit with the Union Edge-Setter Co, now as I understand the case; It is claimed that Mr. Ashe's machine is an infringement on the Union Edge-Setter; & therefore the Union Co have Put the Patent Granted to Helms against Ashe, in order to sustain the Union Edge-Setter Patents, which by the way is claimed to be the invention of first, *Taman for Finger Hook 2d Fulerton & other for Swiveling Polishers & so forth.*

Now such a Sate of things is A riddle to me,—You in fact are not using my devise as You do not use A rest for the Sole of the shoe, neither do You use the Finger Hook as my devise. Sins the Hook was Invented by Taman. and to Sum up the muddle as I now see it, I cannot see wherein the Union Co. can have a case, in fact,—now if was to gess I should that the complaint are figuring

to tire You out. & by that means to fors You to A settlement, by Paying You A small sum for your Patents. so it loocks to me, I have Your communication in answer to my two Letters to You. A little Cloud often fetches Rain hens.—the *Idea that Manidear made me Sick*, man is A quear being, but truth is always the same; Keep me Posted once & awhile & be shure of one thing I am Your Friend & truly Your will wisher.

C. H. HELMS
154 Montgomery st
Poughkeepsie
N. Y.

DEFENDANT'S EXHIBIT HELMS LETTER D.

Po'keepsie Nov 4th 1885.

Friend Ash.

Yours of the 31st to hand. according to Your wishes I have enquired after Gorge Bense but no one answering to such
231 A name or Person can be found in Po'keepsie, in my opinion You have settled the matter of the Face of the Finger Hook beyond all doubt as set forth in my Patent & if that is the Point in question, Your success must be shure; I saw Fulerton, in New York last week & had quite A talk with him; I asked him what the diferance is in my Patent & that of Tamans. He said they wher as differant as it is Posable for diferant Patents to be. Tamans Patent He sais is for A Rotary Trimer, in which the Finger Hock is to half-guide the toe of the Shoe to the Cutter, while in my Patent the Hook is to govern the toe of Shoe to A Reciprocating Polisher; I then asked Him about the result & He said Ash will be defeated any way if we can't beat Him any other way we will sell the Union for $50 each in which case He will soon be used up; He found no falt with me & said that the Dr was disapointed in not seeing me the next day & that He did not understand that I was the one who wished to see Him, neither did He know that I was in Boston as Your witness or for any other Purpose, now lightning Hit You in one suit with the Dr. but I have Yet to lern that It ever Yet struck twice in the same Place; if it should thare is still life, motion and things that wee donot all dream of, and as I have stated to You I have an Edge Setter that Five dollars will complete, for regular use; it is simple and easy to use & is far beyond what You may suppose, at A Proper time I will make You a Proppasiction. I have within A few days recived A Letter in relation to It, for waxed Edges & from A Firm in High St. Boston, they say that some of the Best good are being finished in the style of waxed Edges

Keep all I say to You to Yourself. this same firm has written to me once before but about 2 Years ago at Present I cannot controle it, but, in about 2 or 3 weeks I can manige to handle It. hoping that the future ending up of Your Suit will be in Your favour, I Remain Yours Truly C. H. HELMS

P. S. all communications on my Part to You in relation to the Union Setter Co, strictly Privet.

232 DEFENDANT'S EXHIBIT HELMS LETTER E.

Po'keepsie Nov 16th 1885

Friend Ash

according to hopes Your letter came to hand this morning I am Pleased with Your views as to my device. to do away with the Finger Hook. calls for somthing to Act in its Place. & whatever it may be it must be free and clear of the Hook, all this I am aware of, & what I have got is sound & will stand the test & will do as I have stated. now the Point is for me to Prove what I State, A drawing is not the thing to go by but I will have A moddle soon. it will be finished wednesday of Iron, now I will make You & Mr Eddey an offer, it is this. I have got to go to New Haven this week Friday or Saturday of this week. & what I Propose is. to extend my trip to Boston in order to Show You & Mr Eddey my Plan to do away with the Hook. now this I will do Provided You & Mr Eddey will Pay my Expenses Back from Boston to Po'keepsie so far as the union Co, is conserned You Know my opinion in that direction thare is not a thing that can attempt me to make over-tures to that Co, no matter what I might have & I will say right here. if I can further Your machine in any way I am willing to to it, & to do it from Pure motives, as A matter of cors we must all live & if as I have said. wat I have can be used as I state I am not the one to go back on You & Co, on account of Price; my day as I have said to You is about over in machinery Answer by return mail & I will arraing accordingly

Yours Truly
C H. HELMS

P. S. Your second letter to hand Also, now let me say one thing as my last say,—& it is this. if Your Setter works as well as You have stated to me. & I belive what you say, You will will not be so easy to handle by the Union Co, I mean now in the way Seteling for I think You can dictate Your own terms but you & Mr. Eddey must keep me out of the question,

HELMS

233 DEFENDANT'S EXHIBIT HELMS LETTER F.

Po'keeksie Nov 25th 1885

Messrs Eddy Russel & Co

Dear Sirs

I am home thinking of the Presant & the future to wrench aught out of deth, at the Presant time is to go up Hill. last saturday I stoped at Nyack. Morrow, Jackman, & one other of the large manufacturers, was away I lit on one small Dealer, & talked Him on the Fence. He will consider my offer in the future, I find the Union Co. have got the Idear of Finger Hook firmly established among the manufacturers that, the Finger Hook is A Point established by Law, & that nothing can Brake It. &

I tell You An Agent has to Preach better than Beecher, to make them see diferent. & if, You win the Suit, It will take A good spell to wipe out old notions of long standing. I am now dealing in facts, & yet thare are two sides to every question & oftimes three, now to look matters square in the Face, Mr. Ashes Setter is the best now in use, & right or wrong. like the union, the Finger Hook, is the Bone of contention, now I Propose that You Dig A grave for that Finger Hook. Soon as Posable, Procure A Scribe, Have Flag, for Parson, & Fulerton for Barrer, the Lawyers of cors will be mourners, accompelish this, and Your election is Shure. Spenser of 34 warrens st. New York. told me that Dodge I. think, of Boston. has also got up A new Setter, It, also, embraces the Finger Hook. which Dodge is at the Presant time trying to abolish from His devise. Spenser tells me He has seen Dodges machine & that it is A nice running machine, I told Spenser, that. so far as the Hook was conserned, It was A ded Letter. & that I had sean, An attachment for Mr, Ashes Setter, that was far better than the Hook, & that. I was shure of wat I said, I will have A talk with Howels Folks in A few days & get their Idears of matters & let You Know, let me hear from the front, if there is any thing New, with Best wishes for all, I remain, Yours Truly,

C. H. HELMS,
154 Montgomery st. Pough.

234 DEFENDANT'S EXHIBIT HELMS LETTER G.

Po'keepsie Jany 2d 1886

Friend Ashe.

I recived A Card from Mr. Eddey. He informs me that You have the new fix, by which I take Him to mean, the Clam Jack nearly completed. I hope it will be the thing. If it is, it will fetch Flagg & Co. to terms, so I think. I also received, one your circulars. I think it to the point, & evry word true. Mr. Eddy sais Flagg is makeing all the troubble & Expens Posable. that you will have to Exspect from Him. He knowes no Bounds short of success, Right or wrong. Deth, is the only thing we are shure of in this world, but to look matters Square in the Face. one thing is sure take your Running Geer cuppled with A guide for the Face of the Shoe. & am free & clean from the Hook You will be all right. Flagg will not if He can Buy You Out. let you Put such A machine in for the Trade. I am not talking for myself in this matter, & Yet A grate writter sais whatever Is.-Is. and it is imposable for A thing to be, and not to be, at the same time, hopeing soon to learn that you have the Clamp Jack all completed, Drawings made, & Specifications redy, & not A thing out but to have me to carry out according to agreement my Part of the Program. I wait Your answer, & hope this Year 1886 will be to you A Year of Success & Happiness. Truly

Yours C H HELMS

154 montgomery st

DEFENDANT'S EXHIBIT HELMS LETTER H.

Poughkeepsie Nov

Friend Ash.

have you such A thing as A cut of Your Edge-Setter I mean the Present one, if so, will You send one to me, by return mail I have an. object in view & one that may benefit You,—I wrote to You A few days ago & stated to You that. I had A way to get along & not use the Finger Hook, in any form, connected with Either Your Setter or the
235 Union, I am stating facts in what I say. it is quear how things turn out sometimes the day I went to see about Your man the witness, at Howels Factory. one of the men seaid to me as follows; Helms. why dont You finish the Union Edge-Setter, how finish It I asked. why he. said; make A thing to nock that Finger-Hook in the hed. to use that Hook is the hardest Part to contend with, I made no answer; & had at the time no idea that I should try It but an impreshion was made & I began to think, I reasoned on that Part of the Edge where the Hook is used that Point being the Toe of the shoe the shank and Sides not neding the use of the Hook. I set to work at It & have it. shure as wee both Live. I can attach it to Either one one of the 2 Machines. that is to either Yours or the Union & if I was the owner of Your Setter I wold discard the Finger Hook. & use what I now have in sted,—if any thing, my new Idear will do more work, So You can Judge A little of its use. 3 dollars will cover the Cost of Each Fix Now you will begin to think I am a little out. but I am not I am Square as A Brick It will cost Your-Self & Eddey, but A small Sum to own what I have got. I am Now having A mettle one made, & this is why I want A Cut of Your Setter. I want to see how far the Polishers are out from the Bace, if my Bank was well filled I wold go on to Boston & have You test what I have, the first. let me hear from you

Yours Truly

C. H. HELMS

154 montgomery st
Poughkeepsie N. Y.

DEFENDANT'S EXHIBIT HELMS LETTER I.

Pokeepsie Dec 18th 1885

Mr. Eddy.

My Dear Sir can You Inform me as to how Mr. Ashe. is. on the 20th last month He was not feeling well & said to me, that He felt badly I have written to Him asking after His Health. & not having received an answer. judge He must be sick should be Pleased to know. I am seting forth Your Edge Setter by Letter to such Parties as appear to me the moust likeley to Bite at a new thing. I of cors, set forth the idear of A shure success regardless of the Old

Finger Hook & state that. It. the Hook is to be, Set to one
236 Sidge, for somthing better, I saw A german manufacture, at Albany last week, He asked me how I could blow against. the Old Setter. I soon told Him; He knew not thing of the Suit. but said that Flagg. would Sew every one who get out A new Setter, I gave Him my Idears plainley.

yours truly

C. H. HELMS

154 montgomry st
Po'keepsie N, Y,

DEFENDANT'S EXHIBIT HELMS LETTER J.

Po'keepsie Jany 8th 1886

Friend Ashe.

I am a little stuck as to the Clamp Jack I see Your Idear You are correct Provided, You make the Pipe Stationary to the Base. but if the Pipe be made fast to A Ring I am right. the Ring will turn, I think at will. of the Operator. Yet I may be wild in my notion of It, but if the Clamp Fails I have Still Another Idear, or in other words A Patent in which thare is A device for Stedying the Toe under the action of A Polisher or Cutter, one half of this Patent I have Assigned and one half belongs to me, this Toe guide is not A Hook in any scents whatever, neither is It A Clamp, & will do just what the Hook dose, and yet neither Hand tuches the guide while the To is being Polished. I have got almost any thing on hand Except Goos Yokes. but as You Prefur to wait until the Suit is Settled & also to try Your own luck I shall say all right & & Prosperity be with You

Yours Truly

C. H. HELMS

237 Circuit Court of the United States, District of Massachusetts.
In Equity.

THE UNION EDGE SETTER COMPANY
v.
DAVID CUMMINGS *et al.*
} No. 2318.

Affidavit of Stephen E. Welch. (*Filed Sept.* 6, 1886.)

STEPHEN E. WELCH, of lawful age, being duly sworn, says:

I am in the employ of the complainant and have been upwards of five years last past.

There were no infringing machines on the market when I first entered their employ. The first infringing machine that was put on the market was one called the Universal, but that never got into the market. Less than half a dozen were put out, and the infringement soon ceased. The next infringing machine was the American, and suit was brought against B. F. Spinney and others in the sum-

mer of 1882, which resulted in a compromise, whose details are unknown to me, but the result was that the American machine was out of the market.

There was no infringing machine on the market after that for a year or more, but after about a year and a half the Standard was put upon the market by Robert Ashe and Eddy, Walker & Co. Suit was brought against George E. Keith for using one of the Standard machines and this suit was decided August 19th, 1886, in favor of the complainants.

While the suit against Keith was pending, and less than a year ago—that is, some time late in the year 1885—the Shawmut machine or the twin machine—it is called now by both names—was put
238 on the market by David Cummings. The business has since been done under the name of the Shawmut Machine Company, David Cummings, president, and Zenas Sears, treasurer, F. M. Stevens & Co., agents, but I am unable to learn that the company is a corporation, and according to my best knowledge and belief it is what is called an association.

I have seen and examined at least half a dozen of these Shawmut or twin machines.

They are exactly like the Union edge-setter, as made and sold by the complainant, so far as concerns the finger rest and the reciprocating burnishing tool with a guard or rest for the face of the sole. In fact all the infringing machines I ever saw, including the Universal, the American, the Standard, and the Shawmut or twin machine, copied the Helms patent closely in that respect.

[CUT]

SHAWMUT MACHINE CO.,

Manufacturers of the Celebrated

Twin Edge-Setting

MACHINES,

Also Single Machines with the same simple Mechanism, and the formerly so-called Gordon Edge-Setting Machine, where the shoe is held on a Jack.

We would call special attention to our Carburetter or Gas Machine (where gas is not available), having the capacity for heating three or more machines at a saving of 75 per cent. over alcohol, and much safer, having been approved by the New England Board of Insurance Exchange.

F. M. STEVENS & CO., Agents, 19 High Street.

Zenas Sears, Treasurer.

The above cut correctly represents the Shawmut or twin machine, and it will be plain from that cut that the machine has a finger rest in combination with a reciprocating burnishing tool and a rest for the face of the sole. Each machine has in fact four finger rests, four burnishing tools, and four rests for the face of sole—that is, each

machine is in substance four Helms machines mounted on a single frame.

The cut was clipped from the Shoe and Leather Reporter of Thursday, August 26th, 1886.

I also produce a circular which is identified by the magis-
239 trate. This circular has been widely scattered over the country since February, 1886.

The twin or Shawmut machine would be practically worthless without the finger rest in combination with the fore-part burnishing iron. The finger rest is of no use with the shank iron, and is never used with a shank iron; but four finger rests are in fact on all the double or twin Shawmut machines I ever saw, and two on all the single Shawmut machines I ever saw, so that the fore-part iron may be used in either of the two heads of the single machine or in either of the four heads of the double or twin Shawmut machine.

STEPHEN E. WELCH.

DISTRICT OF MASSACHUSETTS, *Suffolk*, } *ss:*

BOSTON, *Sept. 4th*, 1886.

Personally appeared the above-named Stephen E. Welch and made oath that the foregoing affidavit by him subscribed is true.

Before me—

WILLIAM A. COPELAND,
[SEAL.] *Notary Public.*

Affidavit of John R. Snow. (*Filed Sept.* 6, 1886.)

JOHN R. SNOW, of lawful age, being duly sworn, says:

I am in the employ of complainant's counsel, J. E. Maynadier, Esq. I mailed to the Shawmut Machine Company, No. 19 High St., Boston, Mass., on August 24th, 1886, the letter of which the following is a true and exact copy:

August 24th, 1886.

Gentlemen:

You are hereby formally notified that on August 19th, 1886, the suit No. 2124, The Union Edge Setter Company *v.* George E. Keith, was decided in favor of the Company.

240 You are doubtless aware that a preliminary injunction can now be obtained against you; and suit will be brought unless you at once discontinue the manufacture of infringing machines, and also discontinue the sale of those now on hand.

Yours respectfully,
(Signed)
J. E. MAYNADIER.

I also mailed to F. M. Stevens & Co., at said 19 High St., agents of the said Shawmut Machine Company, on August 24th, 1886, a letter of the same tenor as the above.

JOHN R. SNOW.

DISTRICT OF MASSACHUSETTS, *Suffolk,* } *ss:*

SEPT. 4TH, 1886.

Personally appeared the above-named John R. Snow and made oath that the foregoing affidavit by him subscribed is true.

Before me—

[SEAL.] WILLIAM A. COPELAND,
Notary Public.

Affidavit of Stephen E. Welch. (*Filed Sept.* 6, 1886.)

STEPHEN E. WELCH, being duly sworn, says:

I have already made an affidavit in this case.

I have read the affidavits of S. Flint and of Rufus Bryant and have read much of the other affidavits, but not all of any of them for lack of time, for I did not see any of them until about an hour ago.

What these affidavits state about edge irons and edge planes and the modern style of rotary cutters for trimming shoe soles, that they consist of a rand lip, bed, and guard, and often of a bead and channel guard, is true.

What Bryant says about the face of the hand tools and of the tools used in the Shawmut and Union machines is also true.

Bryant's description of the way of using the Shawmut or Union, for they are almost exactly alike in construction and are precisely alike in operation, is substantially right, but not quite clear,
241 in my opinion. He is speaking about a right-handed workman, but his description will apply to a left-handed workman with the obvious changes.

After explaining how the workman grasps the shoe he says the shoe is then brought up to the iron. I should say forced up under the iron, the workman using the muscles of his legs and body as well as of his arms and hands; and I should say also that the rest for the face of the sole or the guard greatly aids the workman in presenting the shoe properly to the iron—that is, with the rand lip or guide between the sole and upper and pressed against the rand, as Mr. Bryant describes it—for it is certain that I never knew or heard of any other machine except the Helms and those made in close imitation of it. I mean the Universal, the American, the Standard, and the Shawmut or twin, in which this plan of burnishing was practiced; and I am certain that this is a striking feature of novelty of the Helms machine.

Of course, when the tool fits the edge, all parts of the iron are in proper position when one part is, and, consequently, if the rand lip is pressed against the rand, then the face of the sole near the

edge must also be pressed against the guard near the bed; and as the guard is a good deal bigger than the rand lip it certainly aids me and all other workmen vastly more than the rand lip in presenting the sole and holding the sole properly to the rapidly reciprocating tool. I certainly never saw a Helms machine—by which I include all the varieties above named—in which an edge iron without a guard was used; and while I might as a feat use an edge iron without a guard, yet I could not do anything like a fair day's work, and unless I took far more care than is practiced I should certainly do a great deal of bad work; and this is true of all workmen on these machines—that is, the machines would be practically worthless without guards on the edge irons.

When Mr. Bryant speaks of the rand lip or any other part of the iron being pressed against the sole he means, of course, that the sole is pressed against the iron. He was probably thinking of the hand tool or the Ingalls patent when he spoke of the iron being pressed against the sole.

He says the toe part of the sole edge is then passed under the iron and pressed up against the rand lip or guide; but, obviously, he meant that the bed of the edge was also pressed up against
242 the bed of the tool; and it seems to me it would have (been) clearer if he had said that the sole was wedged between the rand lip and the guard, care being taken to bring the bed of the iron into firm and even pressure across the bed of the sole.

While I fully agree with what he says more than once about the rand being held up against the rand lip, yet it seems to me that he exaggerates the function of the rand lip as a guide. No doubt the rand lip is a guide; but the guard is very much more so, and this seems to me obvious. Where no rand lip is used, as in "slick ups," the guard is the only guide.

The assertions in many of the affidavits, in substance, that the guard is not and cannot be a rest for the face of the sole, seem to me to mean nothing more than that the inner surface of the flaring guard cannot be in contact with the sole. If that be what is meant, then I agree with it, of course.

But manifestly the edge of the sole is wedged in between the rand lip and guard, when a rand lip is used, and pressed against the guard by being so wedged in between it and the rand lip; and as the leather tends to squat out or thicken under the pressure that part of the face of the sole near the edge must rest against or bear against, or be in close contact with, the inner face of the guard near the bed.

Mr. Bryant says the face of the sole does not and cannot rest upon the iron, and the guard does not touch the sole; but I notice that he felt bound to add except on the edge or corner of the edge. While his exception is not clearly stated, his meaning seems pretty clear to me, and I feel sure he means just what I mean, which is that in what is called a square-edge iron—the kind shown in the drawings of the Helms patent—the face of the sole always rests against or is in contact with the guard near the lower corner of the edge, because the sole is wedged up between the guard and the lip.

The softer the leather the greater is the amount of surface contact between the guard and the face of the sole, as will be clear, and for extra soft soles the iron is made narrower, slightly, than the thickness of the sole, as several of the witnesses for defendants correctly state; but in all cases the pressure tends to make the sole thicken at the edge, and the surface contact between the guard and the face of the sole is in all cases quite marked, even in square edges.

243 In beveled edges the beveled part of the face of the sole, which some of the witnesses call a part of the edge, correctly enough so far as I know, is in contact throughout with the guard, and so when the bed and the guard form a single curved surface.

By face of the sole I mean all that part of the sole which keeps the sole from being moved flatwise towards the head of the machine when the sole edge is properly presented to the edge iron.

Mr. Flint says that the lower lip or guard cannot touch any part of the sole. If that be so, of course the guard is worthless; but he is evidently of the opinion that the edge is no part of the sole.

The guard rests against the face of the sole in the hand tool, but in the Helms machine the face of the sole rests against the guard. The Ingalls patent machine is like the hand tool so far as the guard is concerned, for in the Ingalls machine the guard is pressed towards the face of the sole by a spring.

In the hand tool one function of the guard is to cause the workman to turn the tool and its handle so as to keep the bed of the tool straight across the edge. In the Ingalls machine the tool stock or handle does not turn, but the tool swivels, and the guard makes it swivel. Helms's guard has this same function. Helms's guard is the first known to me which serves as a rest for the sole—that is, which keeps the sole in proper relation to the tool, or, more strictly, which enables the operator to do this in connection with the finger rest.

The English patents of Gubault and Andrews show a reciprocating edge iron, but the guards on these irons stick out towads the operator, and not downwards slanting as in the Helms machine. This makes these machines worthless. Moreover, they have no finger rests, and a reciprocating iron, even if arranged right, is worthless practically without a finger rest.

The Helms iron travels in a practically straight line, or rather the axis on which the iron swivels travels in a practically straight line, for the travel of the Helms iron is strikingly unlike that of any other machine except, of course, the Shawmut, Standard, and other copies of the Helms machine. The hand tool and the Ingalls iron traveled in a path which was parallel to the face of the sole and also parallel to the bed of the sole edge, while Helms' tool travels in a path parallel to neither of these curves. The Gubault and Andrews tools travelled in a straight line, but did not swivel, and their

244 travel was for that reason substantially different from that of Helms's tool. The spring in the Helms iron does not make the Helms tool rise or fall visibly while in use, but simply gives a quality to the pressure which some operators think important while others do not.

The finger rest of Helms performs a peculiar function; it is more than a mere finger rest, for it must be held or grasped by the finger, for the rapid motion of the iron, first to the right, then to the left, tends to shake the operator's hand; and if the operator merely rested his finger on the rest it would do no good; he must clasp or grasp the rest. The finger rest in the Tayman patent did not perform this function; it simply served as a rest, for the rotary cutter of the Tayman patent tended to move the operator's hand in but one direction.

The finger rest and the rest for the face of the sole acting together perform functions wholly unlike any performed in the hand tool or in any other machine except only the copies of the Helms machine above referred to, for together they enable an operator to hold the sole and upper with one hand, while with the other hand he holds the heel portion of the shoe; and with one finger clasped about the finger rest the shoe is rapidly vibrated, so that nearly the whole circle of the toe is rubbed against the iron at each vibration of the shoe. This combined function of the finger rest and guard or rest for the face of the sole is radically unlike anything else known to me, and I consider it by far the most striking novelty I ever saw. Operators generally overlook the functions of the guard and finger rest, which I have pointed out when speaking of them separately, for they mostly take little interest in such questions; but it is rare to find one who is not struck by the beautiful adaptation of the three parts of the Helms machine after he has learned how to hold the shoe with one hand and to vibrate it around the middle of the toe part of the sole as a centre by the aid of the finger rest and the guard, all the while holding the sole firmly wedged up between the rand lip and guard and preserving an even pressure clear across the sole edge.

It is certain that this operation is absolutely impossible in any other machine, and I have no doubt that it took genius to produce the machine in which it is possible.

STEPHEN E. WELCH.

245 STATE OF MASSACHUSETTS, } ss:
County of Suffolk, }

Subscribed and sworn to this first day of October, A. D. 1886, before me—

EDWARD S. BEACH,
Notary Public.

[SEAL.]

246 Circuit Court of the United States, District of Massachusetts.
In Equity.

THE UNION EDGE SETTER COMPANY
v.
GEORGE P. PROUTY *et al.*
No. 2322.

Affidavit of Stephen E. Welch. (*Filed Sept.* 13, 1886.)

STEPHEN E. WELCH, of lawful age, being duly sworn, says:

I am in the employ of the complainant and have been upwards of five years last past.

There were no infringing machines on the market when I first entered their employ. The first infringing machine that was put upon the market was one called the Universal; but that never got into the market, less than half a dozen were put out, and the infringement soon ceased. The next infringing machine was the American, and suit was brought against B. F. Spinney and others, in the summer of 1882, which resulted in a compromise whose details were unknown to me, but the result was that the American machine was out of the market. There was no infringing machine on the market after that for a year or more, but after about a year and a half the Standard was put upon the market by Robert Ashe and Eddy, Walker & Co. Suit was brought against George E. Keith for using one of the Standard machines, and this suit was decided August 19th, 1886, in favor of the complainants.

The defendants do business under the firm name of Isaac Prouty & Co., and that firm got its first Standard machine early in 1885, as near as I can ascertain, and since that time has had three others.

247 It now has four machines, and on September 1st, 1886, I saw all four of them in operation at its factory in Spencer, Massachusetts. Each of them was a regular Standard machine, so called, and each was precisely the same as the machine Exhibit Keith Machine in the suit against Keith.

Each of them contained the Helms combination of finger rest with a reciprocating burnishing tool having a guard or rest for the face of the sole, and would be practically worthless without that combination.

STEPHEN E. WELCH.

STATE OF MASSACHUSETTS, *Suffolk*, } *ss:*

BOSTON, *Sept.* 11*th*, 1886.

Then personally appeared the above-named Stephen E. Welch and made oath that the foregoing statement by him subscribed is true.

Before me—
[SEAL.]

EDWARD F. BEACH.
Notary Public.

Affidavit of Geo. H. P. Flagg. (*Filed Sept.* 13, 1886.)

GEORGE H. P. FLAGG, being duly sworn, says:

I am the president of the Union Edge Setter Company and the general manager of its business, and have been from its incorporation, and during 1875 and 1876 and up to the incorporation of the Union Edge Setter Co. I had charge of the business.

At the start there was much opposition to the Helms edge-setter, mainly because all prior edge-setters for doing that class of work had proved failures, and the difficulties of introducing the Helms machines were so great that the cost of selling many of the machines was greater than the price paid. The price until 1884 was three hundred and seventy-five dollars ($375), with certain discounts, which made the net price, if paid in thirty days, down to three hundred and thirty-seven and fifty-one-hundredths dollars ($337.50). Up to the end of the year 1877 it is within bounds to say that the cost of making and selling averaged more than two hundred and fifty dollars ($250) per machine.

248 As the machine grew in popularity, which it did very rapidly, the cost of selling rapidly decreased, so that during the years 1878 to 1882, inclusive, the cost of making and selling averaged less than one hundred and fifty-five dollars ($155).

In 1882 the first infringing machine of any importance was put upon the market. Before that time there had been but one infringement, which was trifling, less than a dozen machines being sold. The infringing machine of 1882 was called the American, and I then became thoroughly satisfied that a number of influential shoe manufacturers had adopted the policy of promoting infringements upon patents for shoe machinery in the belief that competition would result in lower prices.

I therefore brought suit against one of these manufacturers, Messrs. B. F. Spinney & Co., of Lynn, Massachusetts, who used the American machine, and the American Edge Setter Company retaliated by bringing suit under a patent owned by them against Messrs. —— ——, who used the Union machines—that is, the Helms machines, for ever since the incorporation of the complainant the Helms machines have been commonly called the Union.

It was during the pending of these suits that I first made a study of the damages caused a business under letters patent by the makers and users of infringing machines. Of such damages the portion capable of being compensated by money recovered by suits against or compromises with the makers and users of infringing machines is much less than one-half the actual damages suffered by the owners of the patent infringed.

The chief damage is, in truth, the very great addition to the difficulty and expense of carrying on the business under the patent; for as soon as an infringing machine appears upon the market the business carried on under the patent is at once unsettled, a large part of the selling agent's time and travelling expenses is diverted from their regular duty—soliciting orders, setting up machines to

fill orders, instructing operators, and generally promoting the business of the Union Edge Setter Company—and it is within bounds to say that one-half of all the moneys paid such agents as salary and travelling expenses is paid them for ascertaining where
249 the infringing machines are in use, for explaining the grounds upon which the Union Company assert that the rival machines infringe, and for doing work which would be wholly unnecessary but for the infringement.

The cost of selling the Union machines is also increased materially, and the fact that the Union Company is obliged to put itself into a hostile attitude to many shoe manufacturers is in itself a material damage. Add to these items the fees of counsel and the other expenses of litigation, not recoverable as damages or costs of suit, and I have no doubt that the irreparable damage caused by the makers and users of an infringing machine is very much greater than the total sums which can be recovered against all the infringers, supposing each one was compelled to pay all the damages which could be proved against or all the profits received by him, and supposing, moreover, that the expense of collecting such damages and profits was, say, one-tenth part of what it is in fact.

The damages caused by the infringement of the American Edge Setter Company were at least twenty thousand dollars, of which less than ten thousand dollars were recoverable, for they sold less than forty machines, and if from this the cost of recovering it was subtracted the net amount would be trifling.

The Union Company enjoyed its exclusive right under the Helms patent without serious infraction until the American Company infringed in 1882, and for a short time after the settlement with that company, which settlement was made mainly for the reason that the terms of settlement were such that it was more desirable for the Union Company to accept them than it was to continue the suit against Spinney & Co., even with a certainty of winning it.

The defendants who constitute the firm of Isaac Prouty & Co. are widely known among shoe manufacturers, and the fact that they use an infringing machine is sufficient by itself to cause many smaller firms to procure and use that machine. Nine-tenths, at least, of all the damage done to the Union Edge Setter Company by the manufacture and sale of infringing machines is directly due to the influeuce of a few large firms whose practice is and for many years has been to promote infringements upon all successful machines used in the manufacture of shoes, and among these firms that of Isaac Prouty & Co. is conspicuous.

250 I have no doubt that every day's delay in obtaining an injunction against the defendants results in damage to the Union Edge Setter Company, and that more than half of that damage is irreparable, for the reason that the cost of recovering damages from an infringer in all the earlier cases tried is many times more than the amount of damages recovered, and also because of the fact that a rigid prosecution of a great number of infringers is expensive, not only in money but also in the large amount of time necessarily spent by the officers, agents, and employees of the company in pro-

curing evidence of infringement and in settling with infringers without litigation.

In this case, for example, when I first had reason to believe that the defendants, Isaac Prouty & Co., had a Standard machine, I directed Mr. Stephen E. Welch, one of our agents, to ascertain what the fact was, and his time and expense in finding out that the defendants had one Standard machine in the spring of 1885 was a total loss to the company; and again, about September 1st, 1886, Mr. Welch was required to go to Spencer, Mass., and prepare himself to give an affidavit in this case, and again his expenses and time was a total loss to the company.

Such items as these multiplied, as they necessarily will, in view of the number of infringers during 1885 and 1886, make up an irreparable damage, which is a serious one and which is a daily total loss as long as the infringements continue.

Early in 1885 the Standard machine was put upon the market, and this infringement necessitated the suit against Geo. E. Keith. All the damages possible to be recovered against all the infringers using the Standard machine would be much less than the actual damages suffered by the Union Edge Setter Company from injury to their business, loss of profits on sale of machines which they would have sold had there been no infringement, and from expenses of their agents, and time of their agents diverted, as above explained, from their regular duties, to say nothing of the fees of counsel and experts.

G. H. P. FLAGG.

251 STATE OF MASSACHUSETTS, *Suffolk*, } *ss*:

BOSTON, *Sept.* 13, 1886.

Then personally appeared George H. P. Flagg, above named, and made oath that the foregoing statement by him subscribed is true.

Before me—

[SEAL.] EDWARD S. BEACH,
Notary Public.

Affidavit of John R. Snow. (*Filed Sept.* 13, 1886.)

JOHN R. SNOW, of lawful age, being duly sworn, says:

I am in the employ of complainants' counsel, J. E. Maynadier, Esq.

I mailed to the firm of Isaac Prouty & Co., on March 16th, 1885, a letter of which the following is a true and exact copy:

March 16th, 1865.

Messrs. Isaac Prouty & Co.,
Spencer, Mass.:

Gentlemen:—

I am instructed by the Union Edge Setter Company, to give you formal notice of your infringement of the following Letters Patent: No. 173,284 to C. H. Helms, dated Feb. 8th, 1876; No. 251,154 to

Robert Ashe, dated December 20th, 1881; No. 254,859, to Robert Ashe, dated March 18, 1882.

Copies of these patents will be sent to you if you care to see them.

I feel sure that an examination of them will leave no doubt in your minds that you are infringing.

I shall be obliged if you will acknowledge receipt of this notice, and inform me, whether you intend to contest the matter or are willing to desist from your infringement and settle for past infringments.

Hoping to hear from you at your earliest convenience,

I am very respectfully,

(Signed). J. E. MAYNADIER.

On August 24th, 1886, I mailed to said firm a letter of which the following is a true and exact copy:

252 August 24th, 1886.

Gentlemen:

You are hereby notified that on August 19, 1886, the suit No. 2124, the Union Edge Setter Company v. George E. Keith, was decided in favor of the Company.

The Court held that the Helms Patent No. 173,284, dated February 8th, 1876, was valid for the combination of a finger rest with a reciprocating burnishing tool with a lip or guard.

I wrote you in relation to this patent on March 16th, 1885, and now respectfully call upon you to send me a statement of the number of machines used by you and to pay damages for your past use.

The machines must be delivered to an agent of the Union Edge Setter Company, or you must take a license from that Company, at the rate of two hundred dollars ($200) for each machine.

I hope to hear from you on or before September 1st, 1886; and I will be glad, at any time before September 1st, to explain the matter fully to you, if you wish further explanation. But I desire to remind you that the validity of the patent has been fully settled after a hotly contested suit, and that I am instructed to enforce it against all infringers; which is as you will readily see the only proper course; for it is as much the duty of owners of patent property to protect it from trespassers, as it is the duty of the owner of a farm or any other kind of property.

Yours respectfully,

(Signed.) J. E. MAYNADIER.

Messrs. Isaac Prouty & Co.,
Spencer, Mass.

JOHN R. SNOW.

STATE OF MASSACHUSETTS, *Suffolk*, } *ss:*

BOSTON, *Sept.* 11, 1886.

Then personally appeared the above-named John R. Snow, and made oath that the foregoing statement by him subscribed is true.

Before me—

[SEAL.] EDWARD S. BEACH,
Notary Public.

253 & 254 *Affidavit of Stephen E. Welch.* (*Filed Oct.* 1, 1886.)

STEPHEN E. WELCH, being duly sworn, deposes and says:

I have just made an affidavit, of even date herewith, in suit No. 2318 in this court, in equity—Union Edge Setter Co. *vs.* David Cummings *et al.*—and as the affidavits on behalf of defendants in that case do not differ in substance from those made in this case, I can only repeat in substance what I have said in my affidavit in that case.

STEPHEN E. WELCH.

STATE OF MASSACHUSETTS, *Suffolk,* } *ss:*

Subscribed and sworn to this first day of October, A. D. 1886.
Before me—
[SEAL.] EDWARD S. BEACH.

255 Circuit Court of the United States, District of Massachusetts.
In Equity.

UNION EDGE SETTER COMPANY
v.
DAVID CUMMINGS *et al.* } No. 2318.

Defendants' Proofs in Opposition to Motion for Preliminary Injunction.

Affidavit of Sylvester Flint. (Filed Sept. 29, 1886.)

DISTRICT OF MASSACHUSETTS, *Suffolk,* } *ss:*

I, SYLVESTER FLINT, being duly sworn, depose and say: I am sixty-nine years of age; reside in Lynn, Mass., and am engaged in the business of making boots and shoes at Babbitt & Lawrence's establishment, 83 Washington street, Lynn.

Since about the year 1846 I have been acquainted with the shape and form of edge irons or tools for setting and burnishing the edges of the soles of boots and shoes, and with their use, having been accustomed to use them for about thirty years prior to the year 1876.

These edge irons have consisted of an upper lip or guide for finishing or burnishing the rand or upper surface of the sole and for keeping the iron in proper position for burnishing the sole edge; a bead when desired for giving an ornamental appearance to the upper part of the sole edge; a bed for finishing or burnishing the sole edge, having a projection commonly called a guard, which is really
256 a part of the bed and serves to burnish the sole edges which are bevelled, or those parts which are bevelled and not reached by the straight part of the bed. Where the sole is of soft leather as in women's shoes, the lower lip or guard, in conjunction with the

upper lip or guide, serves to compress the sole edge and hold it firmly while being burnished. The faces of the irons are made expressly for this kind of work, for use with soft leather, especially in women's shoes.

The face or operative part of the edge iron has been made in a variety of shapes, according to the fancy of the manufacturer or to suit and conform to the prevailing styles.

I have examined a circular marked "Defendant's Exhibit Snell & Atherton Edge Iron." I have seen and used edge irons of these shapes and forms for more than thirty years prior to the year 1876.

These irons are used in the following manner: The workman holds the shoe with the upper towards him, so he can see the rand and also the guide lip of the edge iron; the edge iron is placed upon the sole edge, with the guide lip resting upon the rand, and moved backwards and forwards until the edge is sufficiently burnished. In using the edge iron the workman holds the guide lip against the rand with just sufficient force for him "to feel it there," so that he not only has his eyes to assist in keeping the lip on the rand, and therefore the whole tool in proper position, but his sense of feeling also.

If the guide lip is held to its proper place on the rand the other parts will be properly burnished. For that reason the upper surface of the sole or rand, so called, is always held pressed against the guide lip in order to keep the iron in proper position.

No part of the face of the sole rests or can rest upon any part of the face of these irons. The lower lip or guard, so called, is always cut at such an angle that it cannot touch any part of the sole; where the edge is beveled it burnishes that part of the edge; beyond the edge it does not touch the sole.

I produce an edge iron used by me for ten years prior to 1876, and have marked my name on a tag connected therewith.

Before the sole edge is burnished a plane is used to cut or trim the edge to the desired shape, and the face of the burnishing
257 iron was made to conform to the face of the plane, each having the same lip or guide, bead, bed, and guard.

I produce a plane, such as have been used for the past fifteen years, and mark the same with the initials of my name upon the tag attached thereto.

S. FLINT.

Subscribed and sworn to this twenty-second day of September, 1886, before me—

[SEAL.] JOHN L. S. ROBERTS,
Notary Public.

Affidavit of Haynes M. Libby. (*Filed Sept.* 29, 1886.)

DISTRICT OF MASSACHUSETTS, *Suffolk*, } *ss:*

I, HAYNES M. LIBBY, do truly affirm and say: I am seventy-three years of age; reside in Lynn, Mass., and am engaged in the business

of making boots and shoes, on Olive street, in said Lynn, and have been engaged in said business for about sixty years.

Since about the year 1846 I have been acquainted with the form, shape, and use of edge irons or tools for setting and burnishing the edges of the soles of boots and shoes, and I used them in the business of shoemaking for about thirty years prior to the year 1876, and I have been accustomed to cut edge irons for my own use during that time.

These edge irons have consisted of an upper lip or guide for finishing or burnishing the rand or upper surface of the sole and for keeping the iron in proper position for burnishing the edge of the sole; a bead, when desired for giving an ornamental appearance to the upper part of the sole edge; a bed for finishing or burnishing the edge of the sole, having an inclined projection commonly called a guard, which serves to burnish the edges of the soles which are bevelled or those parts not touched by the straight part of the bed. In women's work, where the sole is of soft leather, this lower lip or guard, in conjunction with the upper lip or guide, serves to compress the sole edge and hold it firmly, whereby it receives a better
258 finish. Irons for this kind of work are made of the desired shape, the lower lip or guard being inclined at a lesser angle than in other irons.

The face or working part of the edge iron has been made in a variety of shapes, according to the fancy of the manufacturer or to conform to the prevailing styles.

The circular of Snell & Atherton, marked "Defendant's Exhibit Snell & Atherton Edge Irons," illustrates and shows the variety of forms and shapes of the face of edge irons which I have seen and known to have been in use and have used for a period of about forty years past.

These irons are used in the following manner: The workman holds the shoe with the upper towards him, so that he can readily see the rand and the guide lip of the edge iron.

The lip of the iron is entered between the sole and upper, pressed upon the rand, the bed of the iron being pressed against the edge of the sole, and the iron is moved forward and backward until the sole edge is sufficiently burnished.

In using the edge iron the workman holds the guide lip against the rand with only sufficient force to burnish the rand and to feel that the lip is in its proper position. In this way he has not only his eyes to assist him in keeping the lip in proper position on the rand, and thereby the face of the entire iron in its proper place, but the sense of feeling also.

When the guide lip is held to its proper position on the rand the other parts of the sole edge will be properly burnished; for that reason the workman always keeps the rand pressed against the lip, knowing that the other parts of the iron will assume their proper position against the sole edge and finish the edge in the desired manner.

The face of the sole does not and cannot rest upon these irons or any part thereof. The lower lip or guard, so called, projects at such

an angle that it does not and cannot touch the face of the sole; it burnishes the bevelled edge of the sole where the sole edge is cut or trimmed in that manner, or, where it is cut straight, burnishes the corner of the sole edge. Wherever it touches it burnishes, and that is the only function it has in tools or irons of this kind.

I have seen and examined an edge iron bearing a tag with
259 the letters and figures "S. F., Sep. 22, 1886," marked thereon, and referred to in the affidavit of Sylvester Flint. This is the same kind of an edge iron that I have used for forty years past and that I have cut from blanks before referred to by me. I have marked the initial letters of my name on said tag. These irons are common, well known, and have been used for forty years past, to my own knowledge.

H. M. LIBBY.

Subscribed and duly affirmed by the said Haynes M. Libby this twenty-second day of September, 1886, before me—

[SEAL.] JOHN L. S. ROBERTS,
Notary Public.

Affidavit of Ellis Delano. (*Filed Sept.* 29, 1886.)

I, ELLIS DELANO, being duly sworn, depose and say: I am seventy years of age; reside in Brockton, Mass., and am engaged in the business of making boots and shoes at said Brockton.

Since about the year 1856 I have been acquainted with the shape and form of the edge irons or tools for setting and burnishing the edges of the soles of boots and shoes and with their use, having been and still am a practical shoemaker, and in my said business have been accustomed to use them for about thirty years past.

These edge irons have consisted of an upper lip or guide for finishing or burnishing the rand or upper surface of the sole, and for keeping the iron in proper position for burnishing the sole edge; a bead when desired for giving an ornamental appearance to the upper part of the sole edge; a bed for finishing or burnishing the sole edge, having a projection commonly called a guard, which is really a part of the bed and serves to burnish the sole edges which are bevelled or those parts which are bevelled and not reached by the straight part of the bed. Where the sole is of soft leather, as in women's shoes, the lower lip or guard, in conjunction with the upper lip or guide, serves to compress the sole edge and hold it firmly while being burnished. The faces of the irons are made expressly for this kind of work for use with soft leather, especially in women's shoes.

260 The face or operative part of the edge iron has been made in a variety of shapes, according to the fancy of the manufacturer or to suit and conform to the prevailing styles.

I have examined a circular marked "Defendant's Exhibit Snell & Atherton Edge Irons." I have seen and used edge irons of these shapes and forms for more than thirty years past.

The face or working part of these edge irons is made of exactly

the same shape and outline as the edge planes or trimmers which first cut or trim the edge to the desired shape, so that the edge iron will fit the sole edge as shaped by the edge plane.

I produce an edge iron which I have had in my possession and used for about thirty years past, and have placed my name on the tag attached thereto.

ELLIS DELANO.

Subscribed and sworn to this twenty-fifth day of September, 1886, before me—

[SEAL.] JOHN L. S. ROBERTS,
Notary Public.

Affidavit of E. J. Reed. (*Filed Sept.* 30, 1886.)

DISTRICT OF MAINE, *York*, } *ss:*

I, EDWIN J. REED, being duly sworn, depose and say: I am forty-eight years of age; reside in Sanford, Maine, and am a practical boot and shoe maker, which business I have followed for about thirty years last past.

In the practice of my said occupation I have used edge irons for setting and finishing the edges of the soles of boots and shoes, and I here produce two of such irons, which I have had in my possession and used since the year 1863.

I have marked my name on the tag attached to said edge irons for identification.

EDWIN J. REED.

Subscribed and sworn to this twenty-ninth day of September, 1886, before me—

[SEAL.] SAMUEL M. CAME,
Notary Public.

261 *Affidavit of Wm. J. Martland.* (*Filed Sept.* 29, 1886.)

DISTRICT OF MASSACHUSETTS, *Suffolk*, } *ss:*

I, William J. Martland, being duly sworn, depose and say: I am fifty-five years of age; reside in Brockton, Mass.; am engaged in the business of making edge planes, welt or rand trimmers, and edge irons or burnishing irons, as they are sometimes called, and also other shoe tools, at the establishment of Snell & Atherton, in Brockton, Mass.

I have been engaged in this business for thirty-two years and upwards, and I am well acquainted with the construction of these kinds of shoe tools.

I have made edge planes in accordance with the patent granted to Isaac A. Dunham and superintended their manufacture since about

the date of his patent, June 24, 1856. These edge planes are made so as to cut any desired form or outline of moulding upon the sole edge of a shoe and the edge irons or burnishing irons have their faces or working parts cut to conform to the shape or outline of the edge plane.

In order to secure the best results the working face of the edge iron should be exactly like the face of the edge plane, and it is made as nearly like as possible.

The shape of the working partof these edge irons varies somewhat, but they have usually a lip, bead, bed, and guard.

The circular of Snell & Atherton, marked "Defendant's Exhibit Snell & Atherton Edge Irons," shows the working faces of a number of edge planes and edge irons, all of which forms are old and well known, and have been used for trimming and burnishing the edges of the soles of boots and shoes for the past thirty years.

These forms for edge irons have been used in handles by hand and also in machines where they have been driven by power, but whether used by hand or in a machine the function of each of the several parts is the same, and they operate in the same manner to produce the same result.

When the edge iron is used by hand the upper lip rests upon the rand, and is pressed thereon during the operation of burnish-
262 ing; the remainder of the working part of the tool is pressed against the edge of the sole, and this backward and forward movement of the tool burnishes the sole edge.

About the same operation takes place when the iron is placed in a machine and reciprocated, the only difference being that in the one case the edge iron is brought to the shoe-sole edge and in the other the sole edge is brought to the edge iron.

When the edge iron is held in a machine and reciprocated the operator presses the rand against the upper lip, using that as a guide in moving the sole edge along, and also presses the sole edge against the working part or bed of the edge iron.

If the shape of the face of the iron conforms to that of the trimmer or edge plane the rand, the upper corner of the edge, the edge itself, and the lower corner of the edge will all be properly burnished, provided the sole edge is held against the rand lip as it is moved along under the burnishing iron.

I am acquainted with the manner these tools operate when placed in machines, and I know that there is no part of any of these irons which affords a rest for the face of the sole or upon which the face of the sole can rest while the edge is being burnished.

The lower lip or guard projects at an angle, so that when the edge of the sole is pressed against the bed of the iron the guard serves to burnish the lower corner of the edge and give to it a good finish.

The thickness of soles vary, and as the proper burnishing of the rand is of quite as much importance as the other parts of the edge it is necessary that the rand be held against the lip during the entire process of burnishing, and when the sole edge is so held the other

parts will be properly burnished; this is true whether the edge iron is used in a hand stock or in a machine.

About ten years ago, when the Union Edge Setter Company were first getting their machines into use, some of the tools then used in said machine were brought to me by Mr. George Fullerton, who was connected with said company, desiring me to recut the said tools, as he said they did not operate properly in the burnishing of sole edges.

These tools were very much wider than the edge irons
263 which Snell & Atherton had been making for hand tools, and the guard was also longer. I told Mr. Fullerton that the tools were not of proper proportion; that they were too wide, and would never operate properly until they were made narrower and of the dimensions which Snell & Atherton had usually made their edge irons. I also told him the guard was too long. Mr. Fullerton said he thought a long guard would be of assistance in bringing the sole edge up to the iron—would not be so likely to have the shoe slip by the iron.

I did considerable work on these irons, making many experiments in various ways and in many different kinds of iron and steel, but finally the said Union Edge Setter Company adopted and had made for their use edge irons of the well-known shapes, forms, and porportions in which they had been made by Snell & Atherton for many years prior thereto, and said company has continued to use said kind of irons in their machines since said time.

WILLIAM J. MARTLAND.

Subscribed and sworn to this twenty-fifth day of September, 1886, before me—

[SEAL.] JOHN L. S. ROBERTS,
Notary Public.

Affidavit of Isaac A. Dunham. (*Filed Sept.* 29, 1886.)

DISTRICT OF MASSACHUSETTS, } ss:
Suffolk, }

I, ISAAC A. DUNHAM, being duly sworn, depose and say: I am fifty-nine years of age; reside in Brockton, Massachusetts, and am a machinist, and engaged in making shoe tools. I have been engaged in said business the greater part of the time since the year 1857, and have made the various styles required by the trade of edge planes, edge-setters, and welt-trimmers or rand-cutters.

I have made several inventions and improvements in these tools, for which I have had granted to me letters patent of the United States.

The first patent I obtained was for an edge-moulding plane, No.
15176, dated June 24, 1856, and I produce one of said planes,
264 bearing a tag, upon which I have marked my name. This plane was adapted and used for cutting or trimming the edges of the soles of shoes with any desired form of moulding, and took the place of what had been before that time used and known

as a "hand brake," one of which I produce and have marked with my name upon the tag attached thereto.

This plane consisted of a lip, bead, bed, and guard, and formed upon the edge of the sole any desired moulding.

In using the plane the lip entered between the sole and the upper and served as a guide in operating the plane.

During the lifetime of said patent I made many thousands of said planes, and they were sold and used everywhere boots and shoes were made.

In addition to these planes I made edge-setters or irons for setting, finishing, or burnishing sole edges, the outline or form of said edge-setters being made of exactly the same outline or form of the operative part or face of the planes.

These edge-setters consisted of a lip, bead, bed, and guard, and fitted the edge of the sole as the plane had shaped it.

The next patent I obtained was for a sole or welt trimmer, No. 18237, dated Sept. 22, 1857, and I produce one of said welt-trimmers, upon the tag attached to which I have placed my name.

This tool is used to cut the rand or welt and take out a thin shaving from the upper part of the sole next the upper, and is used before the plane is applied to the edge.

After the welt-trimmer and edge plane have been used the next operation is to set or burnish the sole edge with the burnishing iron.

Previous to making these inventions and improvements I had learned the trade of boot-making, and was and have been a practical boot and shoe maker, and I have used in said business these tools I have above mentioned, namely, sole or welt trimmers, edge planes, and edge setters or burnishers, and I have seen them used by many others, and I understand the manner in which they operate.

The operation of burnishing is as follows: The workman holds the shoe with the upper towards him so that he can see the rand. He then inserts the rand lip between the sole and upper, places the rand lip upon the rand, and presses the tool against the sole
265 edge, always keeping the lip upon the rand. The tool is then moved forward and backward until the edge is sufficiently burnished. The workman is careful to keep the lip pressed against the rand or upper surface of the sole, as that is the most important part to be burnished, and when the tool is held in such position that the lip burnishes the rand, then all the other parts of the face of the iron are in proper position and operating as desired.

This lip serves as a guide to the workman in the operation of moving the tool in the forward and backward movement, and it is relied upon as a guide to the tool.

The guard serves to burnish the edge where the edge is bevelled; where the edge is straight the guard serves to burnish the corner of the edge and defines the moulding of the lower part of the sole edge or its corner.

After the operation of burnishing the edge of the sole the bottom of the shoe sole is finished by buffing in the well-known ways.

No part of the face of the sole rests upon or touches the guard,

except so far as requisite to burnish or finish the moulded corner of the edge.

The various shapes and forms of edge irons which were well known and in use as early as 1856 are shown in a circular of Snell & Atherton, marked "Defendants' Exhibit Snell & Atherton Edge Irons." Irons of these forms have been in common use from that time to the present, and many others of different outline and form.

I understand the manner in which these edge irons operate in burnishing machines like the Union edge-setter and the Shawmut edge-setter. The workman, holding the shoe by the toe and heel, moves it up towards the reciprocating edge iron, and presses the edge of the sole against the bed and rand lip, moves it along under the iron, keeping the lip pressed upon the rand, as that is the most important part to be well burnished. When burnishing the toe the workman clasps his forefinger around the hook or finger rest in order to hold the shoe steadier, but keeps the lip pressed upon the rand as when burnishing the side; then burnishes the other side in the same manner as before.

All the several parts of the tool operate in exactly the same manner as when used in hand tools. They perform the same
266 functions in the same way, and none of them have or perform any other functions.

There is no part of these irons when used in a machine that can or does form a rest for the face of the sole. The guard serves to burnish the lower corner of the sole edge in straight edges and burnishes the bevel when the edge is bevelled, and that is the only function it does perform.

ISAAC A. DUNHAM.

DISTRICT OF MASSACHUSETTS, }
County of Plymouth. }

Subscribed and sworn to this twenty-eighth day of September, 1886.

Before me—

[SEAL.] LORING W. PUFFER,
Notary Public.

Affidavit of Rufus Bryant. (*Filed Sept.* 29, 1886.)

DISTRICT OF MASSACHUSETTS, }
Suffolk, } *ss:*

I, RUFUS BRYANT, being duly sworn, depose and say: I am forty-five years of age; reside in Lynn, Massachusetts; am engaged in the business of setting the edges of boots and shoes at the establishment of C. H. Aborn, in said Lynn.

Since the fall of 1873 I have been engaged in this kind of work, and have used hand tools, the Dodge and Fifield edge-setter, the Union edge-setter, the American edge-setter, and the Shawmut edge-setter for setting or burnishing sole edges. At the present time I am using the Shawmut edge-setter and the Union edge-setter, each machine a part of the time each day.

I am conversant with the construction of the tools or irons used in all these machines, and also those used by hand.

The face of the hand tools which I used in 1873 and the face of the tools used in the Shawmut edge-setter and the Union edge-setter are each and all of the same form of outline, and are cut in the same shape, and each and every part operates the same, whether used in the hand tools or in these machines. In fact, I have many times taken the tools used in these machines, put them into a handle, and used them to set or burnish the edges of boots or shoes, and
267 if the shanks of the irons used in hand tools were made of the proper shape they could be used equally as well in these machines. There is no difference in the face or working part of these irons used in these machines from those used in handles by hand power. When these irons are placed in these machines, either the Shawmut or the Union, the operator proceeds as follows: The shoe is grasped by the toe and heel, the upper being towards the workman; the shoe is then brought up to the iron, which projects at an angle towards the workman, and the rand lip or guide is entered between the sole and upper and pressed against the rand. This brings all the other parts of the face of the iron into proper position against the edge of the sole. The sole is then passed along under the iron until each part of the edge is properly burnished up to about the turn of the toe. The face of the shoe sole is then grasped in the right hand at or near the toe. The forefinger of said hand is clasped around the hook and the left hand grasps the heel of the shoe. The toe part of the sole edge is then passed under the iron and pressed up against the rand lip or guide and turned to the right and left until properly burnished; then the other side of the fore part is burnished as before. If the shank be of the same form as the fore part the burnishing iron is used up to the heel; otherwise the shank is burnished on another iron which conforms to its shape, but in either case the upper surface of the sole of the rand is always held against the lip as a guide, for when the rand lip is in position upon the rand the other parts of the iron will perform their work satisfactorily.

The face of the sole does not and cannot rest upon the iron, and shoe-sole edges are not and cannot be burnished in that manner. The guard, so called, serves to burnish the edge where bevelled, or, if not bevelled, it burnishes the corner of the edge. The guard is bevelled in such a manner that it cannot and does not touch any part of the face of the sole, and, when the iron is placed or held in proper position with the lip or guide upon the rand, the guard does not touch the sole except on the edge or corner of the edge.

In using a hand tool the operation is about the same, the difference being that with a hand tool the iron is brought to the shoe and in the machine the shoe is brought to the iron. In using a hand tool the workman holds the shoe with the upper towards him,
268 enters the lip or guide between the sole and upper, presses the lip upon the rand, and moves it backwards and forwards until the edge is properly finished. He has his eyes upon the rand as well as upon the lip resting upon the rand, and in this manner

works around the entire edge, always using the lip for a guide in his movements.

There are certain kinds of finishing tools used by hand, called shoulder sticks or "slick-ups," used with shoes where the sole edges are finished in close contact with the uppers, no rand being taken out of the sole, and the same kind of tools fitted to be held in machines are used for the same purpose when such edges are desired. With these kind of tools the guard, so called, serves as a guide.

RUFUS BRYANT.

DISTRICT OF MASSACHUSETTS, *Suffolk*, } *ss:*

Subscribed and sworn to this twenty-second day of September, 1886.

Before me—

[SEAL.] JOHN L. S. ROBERTS,
Notary Public.

Affidavit of Silas Davenport. (*Filed Sept.* 29, 1886).

I, SILAS DAVENPORT, being duly sworn, depose and say: I am fifty-three years of age; reside in Brockton, Mass., and am engaged in the business of making boots and shoes in said Brockton at the manufactory of Geo. E. Keith. I am foreman on the hand and machine sewed work.

Since about the year 1851 I have been acquainted with the shape and form of edge irons or tools for setting and burnishing the edges of the soles of boots and shoes and with their use, having been accustomed to use them for about thirty years last past.

These edge irons have consisted of an upper lip or guide for finishing or burnishing the rand or upper surface of the sole and for keeping the iron in proper position for burnishing the sole edge; a bead, when desired for giving an ornamental appearance to the upper part of the sole edge; a bed, for finishing or burnishing the sole edge, having a projection commonly called a guard, which is
269 really a part of the bed and serves to burnish the sole edges which are bevelled or those parts which are bevelled and not reached by the straight part of the bed. Where the sole is of soft leather, as in women's shoes, the lower lip or guard, in conjunction with the upper lip or guides, serves to compress the sole edge and hold it firmly while being burnished. The faces of the irons are made expressly for this kind of work for use with soft leather, especially in women's shoes.

The face or operative part of the edge iron has been made in a variety of shapes, according to the fancy of the manufacturer or to suit and conform to the prevailing styles.

I have examined a circular marked "Defendants' Exhibit Snell & Atherton Edge Irons." I have seen and used irons of these shapes and forms for thirty years past. They are old and well known.

When these irons have been placed in handles and operated by

hand the method is as follows: The workman holds the shoe with the upper towards him so he can see the rand and also the rand lip or guide of the edge iron when placed thereon.

The iron is then placed upon the sole edge with the guide lip resting upon the rand and moved forwards and backwards until the edge is sufficiently burnished.

When these irons have been placed in machines and operated by power, as in the Union edge-setter or the Standard, the operation is the same. The sole edge is pressed against the iron, the rand being held against the rand lip, and in that position moved along until the edge is burnished.

The edge irons have always been cut so as to conform to the shape or outline of the edge plane or trimmer. The edge iron will therefore fit exactly upon the trimmed sole edge when the sole is of uniform thickness.

The workman always holds the lip against the rand, so that if the thickness of the sole should vary and not be as thick in some parts as desired, yet the edge will be properly burnished, because the lip is held against the rand, and when that is burnished properly the other parts are burnished.

The face of the sole does not rest upon the iron or any part of it. The edge is simply held by the workmen up against the tool, always keeping the lip pressed upon the rand in order to properly
270 burnish it, that portion being quite as necessary to be burnished as any part of the edge, and if I discovered an edge in which the rand was not properly burnished I should send the shoe back again to be reburnished.

I produce a hand-burnishing iron which I used as long ago as 1860. It was made by Snell & Atherton. I have placed my name on the tag attached thereto.

SILAS DAVENPORT.

Subscribed and sworn to this twenty-fifth day of September, 1886, before me—

[SEAL.] JOHN L. S. ROBERTS,
Notary Public.

Affidavit of Samuel N. Corthell. (*Filed Sept.* 29, 1886.)

DISTRICT OF MASSACHUSETTS, *Suffolk.* } *ss:*

I, SAMUEL N. CORTHELL, being duly sworn, depose and say: I am forty-three years of age; reside in Quincy, Massachusetts, and am a practical boot and shoe maker.

I commenced the making of boots and shoes at the age of ten years, working with my father until I was eighteen years of age, when I enlisted in the army, served three years, was discharged at the expiration of my term of service, and returned to my business of making boots and shoes, continuing in such business up to the year 1876, when I became engaged in the business of setting up,

starting, and selling machines for trimming and setting the edges of boots and shoes and instructing operatives in the uses thereof, and have continued in such business up to the present time.

I am familiar with all the methods of finishing the edges of boots and shoes and the tools used for that purpose which have been employed for the past twenty years and upwards.

I have invented and patented improvements in machinery for trimming sole edges and also for burnishing or finishing them.

There are and have been for the past twenty years and upwards various forms, shapes, and configurations given to edge cutters and burnishers. Those most commonly used have consisted of a
271 lip, bead, bed, and guard, so called. Some only have a lip and bed and others lip, bead, and bed. These latter are adapted for use with sole edges that are bevelled and have no straight part.

I am familiar with the edge-setting machines made and sold by the Shawmut Machine Company and with the edge irons used and employed in them; they have the same shape, form, and configuration as the edge-irons made for hand use twenty years ago and upwards, and when operated in the machine each and every part of the face or operative part of the edge iron performs the same function, and in precisely the same manner, and accomplishes the same result as when operated by hand, and does not perform any other function or accomplish any different result.

In order to illustrate my statement I refer to the circular marked "Defendants' Exhibit Snell & Atherton Edge Irons."

All of these cuts or diagrams from No. 1 to 30 show forms of edge-iron faces and edge planes that have been in use for twenty years and upwards. No. 1 has the several parts marked lip, bead, bed, and guard.

Before the shoe-sole edge is burnished the shape or form of configuration is determined by an edge plane or cutter; the edge iron is made of the exact form of the face of the edge plane, follows in the same path, and burnishes the surface of the edge prepared by the plane or cutter; whatever surfaces are cut on the sole edge by the plane are burnished by the edge iron, and no other part of the sole is touched by these irons, or burnished. This statement is true of hand edge irons as well as those operated in the Shawmut machines.

Before the edge plane is employed to shape the edge of the sole a rand knife is employed to cut a rand or shaving from the upper surface of the sole near to the corner of the edge; and when the edge plane or cutter is applied to the sole edge there is a guide or lip, which enters between the sole and upper and is held upon this rand in the passage of the plane around the sole edge.

The shaping of the sole edge by the plane is guided by this lip resting on the rand, and when the edge iron is applied it must have the lip in like manner rest upon the rand in order to properly burnish the sole edge. When sole edges are burnished in the
272 Shawmut machines the workman, holding the shoe by the toe and heel, the upper being towards him, brings the shoe up to the edge iron, entering the rand lip between the upper and the sole,

pressing the sole edge upwards and against the rand lip and the bed of the edge iron.

This is the manner the shoe is held and the edge brought to the iron, and the manner in which I have instructed beginners to operate said machines.

The edge iron is not held vertically in the machine, but projects at an angle of from twenty to thirty degrees or thereabouts, so that when the shoe sole is pressed vertically in an upward direction the rand lip will bear upon the rand, as well as the bed of the iron will bear upon the edge of the sole, which would not be the case if the edge iron was held in a vertical line.

The guard, so called, of these irons, when used in the Shawmut machines, serves to burnish the bevelled part of the edges.

In some cases, where there is no bevel cut to the edge, but the edge is straight, then the guard serves to finish the lower corner of the edge.

Edge irons like the diagrams Nos. 1, 2, and 3 of the Snell & Atherton circular would be used to burnish a straight edge or an edge having a slight bevel at the lower part of the edge. Nos. 8 and 9 are for same kind of edge with longer rand lip.

In some of the edge irons there is what is called a channel guard; this forms a shoulder in the sole edge and defines the bottom of the sole, the limit up to which the bottom is buffed. Channel guards are shown in Nos. 4, 5, 6, 7, 10, 11, 12, 21, 22, and 23.

In women's work, so called, the sole leather is soft, and in order to give it a proper burnish it is better to slightly compress it. This is done by using an iron having the bed a little narrower than the sole, so that when the sole edge is pressed against the face of the tool it will be slightly compressed between the lip and guard. Such irons are shown in Nos. 17, 18, and 19.

I have read the Helms patent many times. I mean No. 173,284, of date Feb. 8, 1876, and believe I understand the same.

There has never been an edge iron used in any of the Shawmut machines that had a rest for the face of the sole, or any part which could be used for that purpose.

273 The guard is not and cannot be a rest for the face of the sole. No part of the face of the sole rests or can rest upon it, and if the shoe should be so held that the face of the sole would touch the guard below the burnishing part of the tool, then the edge iron would cease to burnish the edge, and be utterly useless.

I have prepared sketches of some of these edge irons, shown in the Snell & Atherton circular, representing shoe-sole edges applied to them. The numbers correspond with the numbers in said circular. These sketches I have annexed to my affidavit and made a part of the same, marked "Corthell sketch."

It is apparent that no part of the sole, other than the edge part, is touched or in any manner affected by these edge irons.

The thicker the sole, the thicker the edge, and some of these irons are capable of burnishing sole edges of different thicknesses, Nos. 19, 15, and 25.

Whether the edge be straight or bevelled it is still the edge, and

its peculiar configuration is determined by the edge plane or cutter. Below that part of the guard which burnishes the metal is either clipped off, as in Nos. 8 and 9, or inclined at such an angle that it cannot touch the sole, as in Nos. 10, 11, and 12.

The guard in all these edge irons performs the same functions when used in the Shawmut machine as when used by hand, and no other function. When shoe-sole edges were finished by hand there was a stick or iron sometimes used called a shoulder stick. I produce two of these shoulder sticks, made of wood, and mark them "Corthell shoulder sticks No. 1 and No. 2."

Such tools have been in use during my recollection, and I have been told by shoemakers older than myself that they have been in use for fifty years and upwards.

These tools have a guard which serves as a guide to the workman, being held against the tread of the sole, and a bed which burnishes the sole edge close up to the upper. Such tools are also called "slick-ups;" no rand is cut from the soles with which they are used. Such irons are used also in machines for the same purpose with the same class of goods.

But in the class of shoes where a polished or finished rand is desired the upper lip of the tool serves as the guide against
274 which the sole is held while the edge is being burnished, the workman pushing the sole edge forwards and backwards under the reciprocating iron, pressing the edge of the sole against the bed and lip so that he may get a proper finish on the rand, bead, bed, and channel.

The bottom of the sole and the edge of the sole are finished differently; the edge is burnished; the bottom is buffed. If the edge be straight or bevelled the operation is the same.

The workman presses the edge up against the burnishing iron, the bed, and lip; he never presses the sole against the guard; it is in the other direction he presses—towards the lip.

I have used edge-setters made by the Union Edge Setter Company and those made by the Shawmut Machine Company.

I used the Union edge-setter at the factory of J. S. Allen, in Brockton, Mass., for a period of five months for setting the edges of soles of boots and shoes.

The edge irons were of the well-known shapes I have hereinbefore referred to. No one of them had a rest for the face of the sole, and the face of the sole never rested upon any part of said irons.

I never heard of an edge iron being constructed with a rest for the face of the sole until I saw the Helms patent, about the time a suit was pending against B. F. Spinney and others.

I have never yet seen such a device, and do not believe a burnishing iron would operate successfully if such a device was applied to and used with it.

SAMUEL N. CORTHELL.

Subscribed and sworn to this twenty-eighth day of September, 1886.

Before me—

[SEAL.] JOHN L. S. ROBERTS,
Notary Public.

Affidavit of J. Wesley Dodge. (*Filed Sept.* 29, 1886.)

DISTRICT OF MASSACHUSETTS, *Suffolk,* } ss:

I, J. WESLEY DODGE, being duly sworn, depose and say: I am fifty-eight years of age; reside in Malden, Mass.; am a
275 machinist, doing business at No. 119 Summer street, Boston, in said State of Massachusetts.

Since about the year 1870 I have been engaged in constructing shoe machinery of various kinds, and from the year 1874 almost entirely in constructing machines for burnishing and trimming the edges of the soles of boots and shoes.

I have had the charge and superintendence of finishing and preparing for sale all the sole-edge burnishing machines made and sold by the Shawmut Machine Company, and am acquainted with the construction of all the burnishing irons or tools sold with said machines.

I have seen and examined the patent granted to Charles H. Helms, No. 173,284, of date of Feb. 8, 1876, for a sole-edge burnishing machine, and believe I understand the matters and things therein shown and claimed.

I have also frequently seen and examined the edge-setters or shoe-edge burnishing machines made and sold by the Union Edge Setter Company, and believe I understand their construction and mode of operation.

The sole-edge burnishing machines made and sold by the Shawmut Machine Company each and all differ in their construction and mode of operation from the machine shown and described in said Helms patent and from the machines made and sold by the said Union Edge Setter Company.

I have known of and been acquainted with the form and shape of tools for burnishing the edges of the soles of boots and shoes ever since I was a boy, and especially since about the year 1874 I have had an intimate and thorough knowledge of the shape, form, and uses of burnishing tools, when I began to construct my burnishing machine for which I afterwards obtained letters patent No. 150,305, of date April 28, 1874.

The face or operative part of the burnishing tools made and used in my patented machines had, in cross-section, the same form, shape, and configuration of the well-known burnishing tools which had been used by hand ever since my recollection prior to that time and adapted to burnish the edges of the soles of shoes of any style or shape in which they had been cut or trimmed in accordance with the fancy of the manufacturer, the only difference being that
276 in the burnishing tools used in my machine the face or operative part formed an entire circle, while in the common and well-known hand tools it formed only a segment of a circle—that is to say, the face of these burnishing tools used in these machines had a rand lip, a bead when desired, a bed, and a guard.

I produce samples of the burnishing tools used in said ma-

chines in 1874, marked "Defendants' Exhibit Dodge Burnishing Tool No. 1."

Burnishing tools prior to 1874 had been made of many shapes and forms as to their faces or operative parts, but, although differing in form of outline, they always had a rand lip, a bead when desired, a bed, and a lower lip or guard, as it is called.

The faces of burnishing tools have always consisted of at least three parts, viz., a rand lip, a bed, and a guard, except for a certain class of shoes called "slick-ups," when no rand lip was used, and, whether made in the shape of a circle and whether operated by steam power or by hand power, the functions of these parts have been the same in every particular.

In hand-burnishing tools as well as tools operated in the Shawmut burnishing machines, and, in fact, all other machines used for burnishing sole edges, the rand lip finishes or burnishes the upper surface of the sole around and near to the edge of the sole.

In hand burnishing as well as machine burnishing the rand lip serves as a guide to the operator in applying the tool to the sole edge.

The upper surface of the sole is held towards the eyes of the opertor; the rand lip is then applied to the upper surface of the sole, and the bed of the tool pressed against the sole edge. As the tool is moved along the eyes of the operator are always upon the rand lip to see that it is in proper position, pressed against the upper suface of the sole; it is the guide by means of which the tool is kept in proper position for doing the work required.

The sole edge could not be properly burnished in any other way, and a sole edge never has been burnished in any other way in any of the machines made and sold by the Shawmut Machine Company.

If the rand lip was not held pressed against the rand or upper surface of the sole, but allowed to move toward the upper, it
277 would cut, tear, or otherwise injure the upper. If allowed to move in the other direction, it would injure the sole edge.

It serves as a guide for the operator to keep the tool in proper position, and it burnishes or finishes the upper visible part of the sole called the rand, to burnish which properly is of as much importance as the burnishing of the edge proper, if not more so.

The lower lip or guard, so called, of the burnishing tool is a part of the bed of the tool and serves to burnish the sole edge, having no other function. All the tools made by and used in the machines of the Shawmut Machine Company have been made in this manner, and no one of them has been provided with a rest for the face of the sole or any part upon which the face of the sole could rest.

The operative part or face of the tool is made to conform to the shape of the edge of the sole, allowance being made for variations in the thickness of the sole.

When the leather composing the sole is soft the straight portion of the bed is made a little narrower than the sole edge, so that the sole edge may be slightly compressed between the rand lip and the

lower lip, by means of which the edge can be better held and burnished as well as the corners of the edge.

When the leather of the sole is firm, as in heavy shoes, the straight portion of the bed of the tool is made of about the same width as the sole.

If the edge of the sole has been bevelled by the edge-trimmer, the face of the burnishing iron is made to conform thereto.

Whatever has been the form or outline of the face or operative part of the burnishing irons made and sold by the Shawmut Machine Company, or used in any of their machines, they have each and all had a rand lip, constituting a guide or rest against which the rand or upper part of the sole is pressed by the operator in burnishing, and no one of said irons has been furnished or provided with any part or device which could constitute a rest for the face of the sole, or has ever been used as and for a rest for the face of the sole. The irons are not constructed in that way, and it is an impossibility for any part of the iron to be used for the purposes of a rest for the face of the sole when the edge of the sole is being burnished.

The operation of these burnishing irons is as follows: The
278 workman grasps the shoe by the toe and heel, brings it towards the reciprocating tool, adjusts the upper lip upon the rand or upper surface of the sole, presses the edge of the sole against the bed of the tool, the lower corner of the edge fitting into the beveled shape of the lower lip.

At no time does he allow the upper lip to cease pressing against the rand or upper surface of the sole.

In this manner the operator moves the shoe along until he has burnished from the shank up to the toe.

The operator then grasps the bottom of the shoe in his right hand, the face of the sole resting in his hand, clasps the finger hook with his forefinger, grasps the heel of the shoe with his left hand, approaches the end of the toe towards the burnishing iron, places the upper lip upon the rand or upper surface of the sole edge against the tool, as before, turns the toe of the shoe from right to left and left to right until sufficiently burnished, then lets go of the hook, takes the shoe by the toe and heel, as before, burnishes the other edge in the same manner, passes then to the other iron and burnishes the shank edge, if it be bevelled, or, if it be trimmed in the same shape as the fore part, burnishes it on the same tool with which he has burnished the fore part of the shoe edge.

At no time during this operation does the operator cease pressing the upper lip against the rand or upper surface of the sole, using it as a guide for the proper movement of the iron or burnishing tool upon the sole edge.

The lower lips of these tools are all inclined downwardly at an angle greater than a right angle with the plane of the sole. The lip is cut at this inclination for the express purpose of avoiding any contact with the sole except at the parts desired to be burnished.

If the shoe should be so inclined that the face or tread of the sole

would rest upon this surface, then the edge of the sole would not be burnished nor the rand or upper side of the sole.

As I have before stated, in all the burnishing tools made for use and used in the machines of the Shawmut Machine Company there has been no part of the same adapted for the rest of the face of the sole, and if for any reason the shoe should be so inclined as to cause
279 the tread of the sole to rest against the lower lip of the burnishing iron, then the rand and the sole edge would not be touched, and the process of burnishing them would not and could not be carried on.

When the sole has been attached to the upper the shoe is subjected to the following operations before having the sole edge burnished:

First, a rand knife is used to cut or trim the upper surface of the sole near the edge.

Next, a plane or rotary cutter trims the edge of the sole, the plane or rotary cutter being each provided with a guide which moves between the upper and the sole and guides the plane or rotary cutter, the guide resting on the upper surface of the sole near its edge.

The guide line for trimming the edge of the sole or line from which it is trimmed is the rand or upper surface of the sole.

After being trimmed the sole edges are then brought to the burnisher and the surface of the sole edge presented to the burnishing iron for burnishing in precisely the same way and manner it is presented to the plane or cutter for trimming.

The rand lip is the guide against which the upper surface of the sole or rand is pressed, the rand being the guide line or line from which the sole edge is burnished.

The guide lip of the burnishing iron bears the same relation to the burnisher that the guide of the plane or rotary cutter does to the knives or cutters.

When the edge iron is reciprocated in the Shawmut machine the several operative parts of the iron perform the same functions they perform when operated by hand in a hand tool and no other function.

The guide lip burnishes the rand and, in conjunction with the bed, finishes the upper corner of the sole edge. It also serves as a guide for the workmen to keep the iron in proper position.

The bead, bed, and guard burnish the sole edge and the lower corner of the sole edge.

If the edge be straight the guard, in conjunction with the bed, finishes the lower corner of the edge; if the edge be bevelled, the guard burnishes the beveled part of the edge.

There is sometimes a part which projects beyond the part
280 of the guard which touches and burnishes the sole edge, but this performs no function whatsoever. Neither the face nor edge of the sole is in any manner affected by it.

In some of the edge irons there is a shoulder in the guard called the channel guard, shown in the edge iron referred to in the affi-

davit of Ellis Delano, and also in the edge iron marked "Defendants' Exhibit Complainants' Edge Iron No. 1."

This shoulder or channel guard in burnishing forms a shoulder at the lower corner of the sole edge, the termination of the bevel, and is a guide to the operator who buffs the bottom of the shoe sole, defining the face or tread of the sole and the line to which it is to be buffed.

In heavy work the thickness of the sole varies, and on the thinner part neither the edge plane or rotary cutter would have any leather to cut at the part where the shoulder or channel guard was to be made, and therefore the corresponding portion of the edge iron would have nothing to burnish at those parts. In both cases this would be due to the fact that the edge-cutter and the edge iron were guided from and by the rand lip.

The edge iron follows in the track made by the edge-cutter. It touches the sole only in those parts touched by the edge-cutter. It cannot and does not afford a rest for the face of the sole.

The operative part of the edge irons used in the Shawmut machines has consisted of three surfaces, the lip, bed, and guard, whose planes are at different angles in relation to each other. Two of these surfaces, the lip and bed, must bear upon the sole edge and where the edge is bevelled. The third surface, the guard, will bear upon the bevelled part of the sole edge, but no one of these surfaces can be touched by the sole except at its edge, and neither of them can afford any rest for the face of the sole.

I am the inventor and patentee of the burnishing machines manufactured and sold by the Shawmut Machine Company, and also of many other machines and devices for finishing or burnishing the edges of the soles and heels of boots and shoes, for which letters patent have been granted to me, viz:

No. 150,305, April 28, 1874, edge-setter or burnishing machine.

No. 192,573, July 3, 1877, edge-setter or burnishing machine.

281 No. 238,033, Feb. 22, 1881, device for trimming shoe soles.

No. 238,661, March 8, 1881, machine — trimming shoe soles.

No. 240,104, April 12, 1881, edge plane.

No. 199,523, June 22, 1878, heel-burnishing machine.

No. 220,960, Oct. 28, 1879, heel-trimming machine.

No. 298,671, May 13, 1884, edge-burnishing machine.

No. 297,930, April 29, 1884, edge-burnishing machine.

No. 318,456, May 26, 1885, edge-burnishing machine.

From my familiarity with machines for trimming and setting the edges of the soles of boots and shoes and the irons or tools used therewith, their constructions, modes of operation, and functions, as well as from my knowledge of the machines and edge irons made and sold by the Shawmut Machine Company, I can positively state that no one of the burnishing tools or edge-setters sold by said company or used in said machines have had a surface which projected below the burnishing tool or which is just below the burnishing part of the tool against which the face of a shoe sole has been rested or

could be rested, and I do not believe that any burnishing tool has ever been provided with such a device or contrivance and used in any burnishing machine; and, further, if a burnishing tool was provided with such a device and was attempted to be used by holding the face of the sole against it, while the edge was attempted to be burnished, the result would be a failure, so far as the edge was concerned, whatever might be the result as to burnishing the face of the sole.

J. WESLEY DODGE.

Subscribed and sworn to this twenty-ninth day of September, 1886.

Before me—

[SEAL.] JOHN T. KENNERK,
Notary Public.

282 Circuit Court of the United States, District of Massachusetts.
In Equity.

UNION EDGE SETTER COMPANY
v.
GEORGE P. PROUTY *et al.* } No. 2322.

Affidavits for Defendants.

Affidavit of Charles N. Prouty. (Filed Sept. 25, 1886.)

I, CHARLES N. PROUTY, of Spencer, in said State, being duly sworn, do on oath depose and say that my age is forty-three years; I am a member of the firm of Isaac Prouty & Company, manufacturers of boots and shoes, and doing business at said Spencer, against which firm the above-entitled suit has been brought. Said firm employs at the present time twelve hundred employés in its factories at Spencer. We have purchased and are using four of the "Standard machines," so called, which machines I understand to be like that shown and described in United States patent No. 313,155, issued March 3, 1885, to Robert Ashe, and like that used by George E. Keith, for which use suit No. 2124, in equity, was brought in this court. The burnishing iron in our machines is in all respects substantially like those in use twenty years ago. It has a bed that burnishes the edge or bed of the sole; a rand lip that burnishes the rand, and a longer lip, called the guard, that burnishes the bottom or face of the sole wherever it acts upon it; and that portion of the guard that does not touch the sole performs no function what-
283 ever. The function, operation, or effect of the burnishing iron upon the sole, including the guard of the iron, is identical with that of the irons used by hand twenty years ago, and ever since till now; and the mode of using, moving, or operating the burnishing iron during all that time has not changed in any respect, except that the iron has been in later years actuated by power in a machine instead of being moved in a reciprocating or back-and-forth manner by hand, which is now effected by power. I am able

to state these facts positively, because I have since my boyhood been familiar with the form and mode of using and the operation of burnishing irons, and I know that the burnishing irons in the machines we are now using perform the same identical function and in the same manner as the old hand tools did in my boyhood, and they perform no other function or duty and accomplish no other result or effect than did those early tools. The finger hook in our machines serves simply and only as a rest for the finger of the operator and peforms no other duty. Said firm has been notified by the Union Edge Setter Company that it must pay a royalty of two hundred dollars ($200) on each of its present machines, or else we should be forced to suspend our business or pay three hundred dollars per machine for those made by the Union Edge Setter Company. Our firm is not only solvent, but has ample means to meet this and all other liabilities, and as I am informed that a rehearing is to be asked for in the Keith suit, referred to in the notice sent us by this Union Edge Setter Company, I respectfully request the court that we may
284 be allowed to use our machines — rehearing may be had.

CHARLES N. PROUTY.

UNITED STATES OF AMERICA,
District of Massachusetts, County of Suffolk, } ss:

On this 18th day of September, 1886, before me personally appeared the above-named Charles N. Prouty and made oath that he has read the above affidavit, and that the same is true.

[NOTARIAL SEAL.] EBEN HUTCHINSON,
Notary Public.

285 *Affidavit of John B. Emery.* (*Filed Sept.* 25, 1886.)

I, JOHN B. EMERY, of Lynn, Massachusetts, being duly sworn do on oath depose and say that my age is forty-four years. I went to learn the custom shoemaking business thirty years ago, and after learning it went to work as a journeyman and worked over twenty years, a large part of the time in shoe factories where full sets of machinery was used. After learning my trade I used to make my own burnishing irons and am entirely familiar with the making and using of the same. I am familiar with the Helms machine, made and sold by the above-named complainant, and I know that the burnishing iron used in that machine is the same in form, having a bed, rand lip, and guard, as those used by the trade thirty years ago and ever since then, and it performs the same duty in the same way and with the same and no better result, the slight swivelling of the tool being exactly like the action of the operator's wrist in using the hand tool. I am also familiar with the machines used by the above-named defendants called the "Standard" machine, and made in accordance with the Ashe patent of March 3, 1885, and in this machine the burnishing iron is identically the same as
286 those used by the trade thirty years ago, it having a rand lip, bed, and guard, as did those earlier tools, and in use it

operates in precisely the same manner and with the same result, the rand lip burnishing the rand, the bed acting on the edge of the sole, and the guard acting in part of its surface on the face or bottom of the sole, and when it so acts it burnishes, and where it does not touch the sole it performs no duty whatever. In fact, for the past thirty years the only change made in burnishing sole edges with vibrating tools has been in providing means by which to operate the tools by power instead of by hand, and the use of power-driven burnishing irons was well known years before the date of Helms' patent of 1876. In fact, if you take any of the burnishing tools that are used in power-driven machines and secure the shank of the tool in a suitable handle you have the identical hand tool for burnishing that was in use thirty years ago, or, in other words, the present burnishing tool, used in machines, has been taken from the old handle and secured in the machine and performing the same old duty in the same old way with the old result.

JOHN B. EMERY.

Boston, Sept. 22, 1886.

UNITED STATES OF AMERICA,
State of Massachusetts, County of Suffolk, } *ss:*

Then personally appeared John B. Emery and made oath that the foregoing affidavit by him subscribed is true.

Before me—

[NOTARIAL SEAL.] EBEN HUTCHINSON,
Notary Public.

287 *Affidavit of Luther Stowe.* (*Filed Sept.* 25, 1886.)

I, LUTHER STOWE, of Worcester, Massachusetts, being duly sworn, do on oath depose and say that my age is seventy-four years. I went to work at shoemaking for my father, who was a shoemaker, when I was a small boy, and have worked at the business almost all the time ever since. Before the introduction as an article of sale of irons for polishing and burnishing sole edges of boots and shoes I used to make them myself, and am familiar with them. There is no practical difference between the irons then used by hand and those now used in machines. In each there is a rand lip, a bed, and a guard. The lip acts on the rand, the bed acts on the sole edge or bed, and the guard acts on the face or bottom of the sole where it touches it, and where it does not touch the sole it performs no duty whatever. The operation of these tools by a short vibrating movement and the result produced upon the sole edge is the same now when used in power machines as when used by hand, and is no better. All that has been done has been to put the hand tool into a holder driven by power, and the long lip or guard performs the same identical duty that it always has, and no other
288 The rand has always been, when burnishing by hand or power-held next the operator, so that if the sole was of uneven thick-

ness the rand lip should at all parts and places be made to bear uniformly on the rand, regardless of whether the guard touched the face of the sole or not.

Boston, Sept. 22, 1886.

LUTHER STOWE.

UNITED STATES OF AMERICA, }
State of Massachusetts, County of Suffolk, } ss:

Then personally appeared the above-named Luther Stowe and made oath that the foregoing affidavit by him subscribed is true.

Before me—

[NOTARIAL SEAL.] EBEN HUTCHINSON,
Notary Public.

289 *Affidavit of Milton L. Eddy.* (*Filed Sept.* 25, 1886.)

I, MILTON L. EDDY, of Boston, Massachusetts, being duly sworn, do on oath depose and say that my age is fifty-two years. I have for the past fifteen years been engaged in making and selling shoe machinery, and am familiar with it. I have also from my boyhood been familiar with the method of burnishing sole edges by means of a burnishing iron or "shoulder stick," as it used to be sometimes called, which has always had a bed to fit the sole edge, a "rand lip" to fit the rand, and a guard which more or less bears against the bottom or face of the sole and which burnishes the sole where it touches it and performs no duty where it does not touch the sole. I sold to Isaac N. Prouty & Company the four "Standard" machines for using which the above-entitled suit has been brought. In these machines as made and operated (which are identical with the machine shown and claimed in letters patent No. 313,155, issued March 3, 1885, to Robert Ashe) the burnishing iron is the same in every respect as relates to bed, rand lip, and guard as the hand-burnishing tools in use in my boyhood, and it operates in
290 the same, identical manner—a short reciprocating motion—as did those old tools and as have all vibrating burnishing tools since I can remember, and the result is identically the same now as in my boyhood. The only difference between vibrating and rotary tools is that one moves in alternating directions and the other in a constant direction; but these two kinds of tools have for more than a dozen years last past been well-known equivalents. In the Union machine, so called, made under the Helms patent, No. 173,284, the burnishing iron operates in the same, identical manner as did the old hand-burnishing iron forty years ago, except that then it was operated by hand, but is now driven by power, and the result or product is precisely the same now as then and is now in no respect better than it then was. I further depose that the commercial rating by the commercial agencies of said defendants is from three hundred thousand to five hundred thousand dollars, and I know that their financial standing is of the highest order. I further depose that since the rendering of the decision in the suit of the

Union Edge Setter Company *vs.* George E. Keith in this court my customers who were using the Standard (Ashe) machine have been notified by said company that they must either pay a license fee of two hundred dollars on each machine or surrender up the machine to said company. I append one of said notices, marked Exhibit A. I also append two other notices sent out by said company, and marked respectively Exhibits C and D.

MILTON L. EDDY.

Boston, Sept. 22, 1886.

291 UNITED STATES OF AMERICA, }
State of Massachusetts, County of Suffolk, } *ss:*

Then personally appeared the above-named Milton L. Eddy and made oath that the foregoing affidavit by him subscribed is true, before me—

[NOTARIAL SEAL.] EBEN HUTCHINSON,
Notary Public.

292 EXHIBIT A. E. H., N. P.

J. E. Maynadier, attorney and counsellor at law, 33 School street, rooms 25–28, Boston, Mass.

AUGUST 24TH, 1886.

GENTLEMEN: You are hereby formally notified that on Aug. 19th, 1886, the suit No. 2124, The Union Edge Setter Company *v.* George E. Keith, was decided in favor of the company.

The court held that the Helms patent, No. 173,284, dated February 8th, 1876, was valid for the combination of a finger rest with a reciprocating burnishing tool with a lip or guard.

I wrote you in relation to this patent on October 19th, 1885, and now respectfully call upon you to send me a statement of the number of machines used by you and to pay damages for your past use.

The machines must be delivered to an agent of The Union Edge Setter Company, or you must take a license from that company at the rate of two hundred dollars ($200) for each machine. I hope to hear from you on or before Sept. 1st, 1886, and I will be glad, at any time before September 1st, to explain the matter fully to you if you wish further explanation. But I desire to remind you that the validity of the patent has been fully settled, after a hotly contested suit, and that I am instructed to enforce it against all infringers, which is, as you will readily see, the only proper course, for it is as much the duty of owners of patent property to protect it from trespassers as it is the duty of the owner of a farm or any other kind of property.

Yours respectfully, J. E. MAYNADIER.

Messrs. Amazeen & Haley, Milwaukee, Wisconsin.

293 EXHIBIT B. E. H., N. P.

J. E. Maynadier, attorney and counsellor at law, 33 School street, rooms 25–28, Boston, Mass.

AUGUST 24TH, 1886.

George E. Keith, Esq., Brockton, Mass.

DEAR SIR: On August 19th the United States circuit court decided the suit brought against you by The Union Edge Setter Company in favor of that company.

I have a writ of *writ of* injunction against you, and will have it served on Friday next, unless you prefer to settle in the meantime by paying costs of suit and a license fee of two hundred dollars ($200) for each infringing machine.

Very respectfully, J. E. MAYNADIER.

294 EXHIBIT C. E. H., N. P.

Office of The Union Edge Setter Co., 25 Tremont street.

BOSTON, *August 20th*, 1886.

Messrs. —— ——:

The suit brought by The Union Edge Setter Co. against George E. Keith was decided August 19th, 1886, in favor of the company, and the Helms patent, which is for the combination of a finger rest and a reciprocating burnishing tool with a guard, has been held valid. This decision is after a hotly contested trial and leaves no room for any further doubt as to the validity of the Helms patent.

The Standard machine, so called, was held to infringe in the suit against Keith, and, as the Shawmut machine, so called, is almost identical, you will readily see that that machine is also a plain infringement.

Proceedings have been commenced and will be diligently prosecuted to put a stop to all infringements, and preliminary injunctions will be obtained against all users as well as makers of infringing machines.

Very respectfully,

THE UNION EDGE SETTER CO.,
By G. H. P. FLAGG, *President.*

295 Circuit Court of the United States, District of Massachusetts.
In Equity.

THE UNION EDGE SETTER COMPANY
v.
PROUTY *et al.*

SAME
vs.
CUMMINGS *et al.*

Affidavit of Joseph P. Livermore. (*Filed Dec.* 20, 1886.)

JOSEPH P. LIVERMORE, of lawful age, being duly sworn, says:

I reside in Cambridge, Massachusetts, and am and have been for several years occupied in matters relating to patents and inventions. I have had much experience as to machinery and have frequently testified in suits relating to patents, and testified in the suit by these complainants against George E. Keith.

I am familiar with the Helms patent, No. 173,284, and also with a class of patents of which the Ingalls, No. 28181, and the Carey, 147,551, are samples—that is, patents which show a reciprocating burnisher and a jack as parts of one machine. I am also familiar with the patents of Molliere, 13950; Thompson, 50356; Burns, 97758; Carey, 129,457, and Tayman, 136,790.

The material elements of the Helms combination are shown in Fig. 1 of the sheet of diagrams, which I produce herewith, viz., the burnishing tool and its rest for the face of the sole and the finger rest.

The Molliere patent, No. 13950, does not say that there was any difficulty in holding the sole edge by the unaided hand up to a rotary burnishing tool with a bed, bead, rand lip, and guard or rest for the face of the sole. Fig. 2 of the diagrams, before referred to, shows Molliere's fore part or sole-edge tool, and Fig. 3 shows his heel-edge tool, the main difference being that the rest for the face of the sole in the fore-part tool is a flange in one piece with the tool, while this flange or rest for the face of the heel is not a part of the heel-edge tool.

296 The parts marked *y* and *y'* in Fig. 3 of his patent are not described, but I think it is clear that they are rests for the face or tread of the heel.

The Thompson patent, 50856, see Fig. 4 of diagrams, shows a rotary burnisher with a rand lip, bead, and bed, the bed being wide enough to suit all widths of sole or heel edges; and for this reason the rest for the face of the sole or heel is made separate from the rotary tool and adjustable for the different widths of sole edges. Thompson states: "In operating this machine it is simply necessary to adjust the guide (meaning the part marked F, which I have called the rest for the face of the sole) to the point required by the thickness of the edge of the sole or heel to be burnished and to hold the edge of the shoe firmly and steadily against the burnishing wheel."

Burns, 97758, shows the same adjustable rest as Thompson's, but

above the tool. These three patents, the Molliere, Thompson, and Burns, are alike, in that in all the tool exerts a steady pull in one direction against the sole edge, and in that the shoe must be canted or tipped to bring the edge proper of the sole into firm, even contact with the burnishing part of the rotary tool, and in that the shoe must be moved to keep the axis of the rotary tool straight across the sole edge. I can see no reason why there should be any difficulty in holding a shoe to these rotary tools by hand alone without the aid of a finger rest.

The part marked *g* in the Carey patent, 129,457, is like the part F of Thompson's, 50856, and the part *y* or *y'* of Molliere, 13950—that is, the face or tread of the sole or heel rests against the face of the part *g* just as it does against the face of the part F of Thompson and the face of the part *y* or *y'* of Molliere and the face of the rotating flange in Molliere's sole-edge tools. The pull of the tools in this Carey patent is instantaneous—that is, there are four tools, two marked *f* and two marked *i*; see Figs. 5 and 6 of diagrams; one tool *f* strikes the sole edge and tends to knock it slightly down and to the left; the next tool *i* then strikes and tends to knock the sole edge slightly down and to the right; then the second tool *f* strikes as did the first tool *f*, and then the second tool *i* strikes as did the first tool *i*, there being four blows at each revolution of the machine; 3,000 revolutions per minute or 50 per second seems to me a fair speed to
297 assume; this would make two hundred blows per second, and in that case each tool would be in contact with the sole edge very much less than one two-hundredth part of a second. This would practically prevent this device from tending to pull the shoe at all or to push it at all, whereas in the Molliere, Thompson, and Burns machines the edge would be constantly pressed against the rotating periphery of the tool and would be constantly pulled, while when the edge is constantly pressed against a reciprocating tool the tendency is first a pull, then a push, or a movement in one direction for the whole length of stroke of the burnisher, and then a movement in the opposite direction for the whole length of stroke of the burnisher. This instantaneous touch and go of Carey, 129,457, is radically unlike the other two classes, rotary and reciprocating; but otherwise the Carey is in the same class as Molliere, Thompson, and Burns—that is, all four show tools in which the rest for the face of the sole is separate from the tool and does not revolve with the tool, instead of the more familiar rotary tools (see Fig. 2, diagrams), in which the rest is a part of the tool, and consequently the tool is adapted to but one thickness of edge.

The Tayman patent, 136,790, shows a rotary trimmer and also a rotary burnisher, and it also describes a finger rest in combination with the cutter, but not with the burnisher (see Fig. 7, diagrams). In holding the shoe to the rotary cutter the shoe is subjected to a steady pull, much like the steady pull of the rotary burnisher, and the shoe must be moved to keep the axis of the rotary cutter straight across the edge—that is, in these two respects the operation of holding the shoe to a rotary cutter is substantially the same as to a rotary burnisher; but the canting or tipping of the shoe depends upon the

judgment and skill of the operator when trimming with a rotary cutter, while it is a mere matter of firm, even contact with a rotary rubbing surface when burnishing with a rotary burnisher.

I think there is nothing in these patents showing rotary tools, including the Carey, 129,457, which throws any light on the question how to present a sole edge to a rubbing tool which reciprocates rapidly while in constant contact with the edge.

The only way known or suggested before 1874 was to jack the shoe, as in the Ingalls and other patents showing machines
298 with jacks, or the way shown in the English patents of Gubault and Andrews, where the shoe was held in the hands, but without the aid of a finger rest.

Helms found out a new way—that is, by the aid of the guard and the finger rest; I think his way ingenious, and I understand that it has supplanted all other ways, and I cannot see how he found out his way unless he invented it.

It seems to me that Helms had a problem of a good deal of difficulty, namely, how to present a shoe to a reciprocating rubbing tool. He certainly solved that problem, and his solution of it I understand to be the only one of any great practical value up to date.

The operation of the Helms combination is materially different from that of any other combination, and for that reason, in addition to the reasons above given, it seems to me to be an invention. The tool is held straight across the edge by the swivelling of the tool in the Helms machine, while the workman has to move the shoe in order to keep the tool straight across the edge in the rotary. I don't mean that this swivelling of the tool is new with Helms (for it is shown in the Ingalls patent), but only that it is new in a machine where the shoe is presented by hand. But the most striking novelty of the Helms operation is due to the joint operation of the finger rest and the rest for the face of the sole when the toe of the sole is burnished; then the finger rest not only performs its functions to keep the hand from moving to and fro, but also enables the workman to use the finger hooked around the rest as a shifting centre around which to vibrate the shoe and thus rub the edge of the toe back and forth under the tool. This is practically impossible unless the rest for the face of the sole and the finger rest be used together—that is, it is made possible by the joint action of the finger rest and the rest for the face of the sole.

It may be said that the Thompson machine has a rubbing tool or rest for the face of the sole and a finger rest (*i. e.*, the lower part of the rest for the face of the sole), and that consequently all that Helms did was to substitute a vibrating tool for the Thompson rotary, but this is not the fact, for if a vibrating tool should be substituted for the rotary one in Thompson's machine the rest for the face of the sole (*i. e.*, the part F) must move with the tool in order to have it produce any useful effect, and this movement would make it
299 impossible to use it as a finger rest, or if the part F were fixed and made to serve the purpose of a finger rest (a function not suggested by Thompson, however) it could not also serve as the rest for the face of the sole for the reason that in order to be of any prac-

tical value the flange or rest for the face of the sole when used with a vibrating tool must vibrate with the tool; in other words, Thompson's combination of two parts, viz., the tool and the rest for the face of the sole (the part F), even supposing that the latter might also be used as a rest for the operator's finger, is not Helms' combination of three parts, namely, the tool, its flange (rest for the face of the sole), and the finger rest, all three of which co-operate and each one of which I have no doubt is absolutely essential in order to burnish sole edges of a quality and with a rapidity sufficient to compete with hand work.

As a summary, I think that Helms is the first to use a flange distinct from the finger rest; that this is the vital feature of his novelty; that it is practically impossible to present the toe of a shoe properly to the action of a rapidly reciprocating rubbing tool against which the edge of the sole is constantly pressed without the joint aid of this flange and this finger rest, and that when Helms found this out he made an invention.

I have no doubt that this invention is of great merit, because I am satisfied that Helms' way is far better than any other, and, so far as I can see, it is the only way now known which is desirable for practical use.

JOS. P. LIVERMORE.

Sworn to Dec. 20, 1886.

Affidavit of Charles H. Helms. (*Filed Dec.* 20, 1886.)

CHARLES H. HELMS, being duly sworn, says: I am the patentee in letters patent No. 173,284, dated February 8th, 1876, and am the original and I have no doubt the first inventor of the machine described in that patent.

I understand that the court has doubts as to whether I made any invention or not when I got up my edge-setter or sole-edge burnishing machine, and I am asked to state as clearly as I can what I think about it.

300 For upwards of twenty years my whole living has come from my inventions, and I have obtained a good many patents, and nearly all of them had to do with shoe machinery. I believe I am pretty well posted as to shoe machinery; I ought to be, for I done nothing else to speak of since 1860.

I hardly know how to show any one that my edge-setter is an invention, but taking all the knowledge I had in 1874, when I made my first machine, and all I've learned since, I feel pretty certain that I can show I didn't borrow or steal from any one, and that my machine came to me after I had turned the matter of edge-setting over and over in my mind and got a clear notion of just what was necessary in a machine to do that work.

It was while I was at work in the suit of Sweetser *v.* Helms (in the circuit court for the district of Massachusetts) that I had to study the Ingalls patent (No. 28181, dated May 8th, 1860), and I see then that a setter with a jack was a mistake, because I could see no way

to make the jack free to move, and I knew well, from hand work, that the tool must be free, or else the jack; one or the other.

I also knew about rotary setters and about rotary trimmers, and I have since learned that there were several patents for trimming machines and edge-setters granted before 1875, which I am told must be reckoned as if I knew all about them in 1874.

Of these machines all the edge-setters with jacks appear to me to be no more account than Ingalls'; all the rotary edge-setters to be no more account than any one of them; all the trimmers to be no more account than any one of them, say Tayman's, and the Gubault and Andrews patents to be one, and the Carey patent (No. 129,457, dated July 16th, 1872) to be practically a rotary.

The edge-setters with jacks are all wrong, and I know that a hand workman will beat any of them. It's the wrong principle, but it's the principle which was thought right when I took up the matter, in 1874. The trouble is that the bed of the sole edge must be kept pressed flat and firm against the bed of the tool, and as the bevel of the bed changes in the same sole (even if it was meant to be the same the soft and hard spots in the leather would change it) it is certain that the tool can't bear right when the shoe is jacked and the tool is a part of the machine; what I mean is that do what
301 you can you can't make the tool and jack both parts of the machine and have the bed of the edge and the bed of the tool bear right; it may be right in places, but it won't all round, or anywhere near it. I don't mean by this the Carey patents (Nos. 147,551 and 147,552), where the tool was held in the hand and only moved by the machine; that is a foolish way, it seems to me, for the man will be shaken so that he can't do good work, if the machine is speeded fast enough to compete with hand work. None of these machines could compete with hand work; I mean none of the jack machines, including the Carey patents (Nos. 147,551 and 147,552).

I think it will now be plain that I got no help from any of the jack machines, and it seems to me that I was hindered by these machines, for I did not believe in 1874, when I began, nor nobody else, that the shoe could be held without a jack up to a rapidly reciprocating tool.

I know now that Gubault and Andrews thought so, but I also know that with the tools held so that the workman has got to shove the sole against them, as they are held in their patents, that nobody can do half a day's work in a day, and I know he can't get round the toe at all and do a fair job.

The first light I got on the matter was the notion of mounting the tool so that the workman could lift up under it. I mean as shown in my patent. This notion struck me one day, and I then felt that I began to see my way clear, and I had a machine made and tried it, but found it impossible to hold the shoe when trying to do the toe. I then made the finger rest, but the machine was rough and imperfect, and I couldn't do any good work. However, I felt then sure that I had struck it right, and took it to Boston to get money to perfect it, and although it was a good deal of work to get it just

right I never had any doubt but I was on the right track and would succeed.

But I am ahead of my story, for I want to make plain that trimming is one thing and edge-setting another, for in trimming with a rotary cutter the man must cant or tip the sole so as to get the bevels of the edge as he wants them, while in setting he must feel the bed (with its bevels ready made by the cutter) flat and firm against the tool. He don't tip the sole as he wants to, but as he's got to. He has nothing to do with it but to hold the sole so
302 that its bed will be firm and flat against the bed of the tool, while a man trimming must hold the sole so that the cutter will cut away the edge to give him the bevels he wants. It's as different as night and day.

In trimming with a rotary cutter the man holds the shoe up under the cutter and draws the shoe towards him, all the while tipping it to give the bevels desired to the edge. In going round the toe the operation is almost the same exactly. His eye and skill governs him, and feeling has nothing to do with it, so a finger rest with a cutter is of no use. I know I never saw or heard of one used with a cutter, and I am sure that nobody ever used one with a cutter. It would be in the way and interfere with the workman, and certainly could do no good even if it was not in the way. The rotary tool always drags the shoe steadily away from the man, and this is true both of cutters and burnishers when rotary. There is no trouble in holding a shoe to any rotary burnisher, and nobody ever thought there was, and a finger rest is useless with a rotary burnisher. The difference between holding a shoe to a rotary burnisher and holding it to a reciprocating burnisher is so plain that I think anybody can see it. In the rotary the drag of the tool is always to the left and steady. The tool is kept square with the edge by moving the shoe. The drag of the tool is trifling and, as I said, always one way. The surface of the tool is a small circle and the contact little. In my machine the drag of the tool is first a drag and then a shove, and the power of the tool to move the shoe both ways is forty times more than the rotary. The tool is kept square with the edge by the swivel of the tool and not by moving the shoe. The surface of the tool is almost flat—I don't mean from lip to guard, but the other way—and the contact large. It's a totally different thing to hold a shoe to the tool of my machine from what it is in any other machine, and I am the first to make a machine in which it was practical to hold a shoe to a tool which reciprocated fast enough to do the work. Gubault Andrews, it seems, tried it, but I know that they didn't show how it could be done. I show in my patent how it can be done and how it has been done ever since and the only way in which it can be done, so far as I know, up to date.

It seems to me from all this that I made an invention when I found out a way to hold a shoe to a reciprocating tool, and I think that the fact that nobody knew any way to do this before I
303 invented it, and that all the ways tried before my invention were failures and my way a complete success, goes to show that my way was an invention.

The Carey machine (patent No. 129,457) is the only simple machine except mine and the common rotaries for edge-setting; but the tools of the Carey machine simply hit the sole edge. Carey shows an adjustable guard, and the face of the sole is to be held against this guard with the bed of the edge flush with the upper edge of the guard. His tools have neither rand lip nor guard.

I don't see any difference in substance or effect between Carey and Thompson (patent No. 50856, of 1865) except that Thompson's is simpler and better; both are rotary machines, and the guard is not on the irons in either; but there is an adjustable guard in each, which is set to suit the thickness of the sole. The fact that Carey has four tools, two rotating one way and two the other way, does not make the Carey machine better and does make it worse than Thompson's machine. Neither of them helped me or could help anybody in finding out how to hold a shoe up to a reciprocating burnisher.

My invention does not seem to me to lay in substituting a reciprocating tool for the tools of Thompson or Carey or Tayman, for if you take away the tools from these machines you have nothing left but a single shaft in Thompson and Tayman and a couple of shafts in Carey mounted in a frame, which frame has a finger rest in Tayman and a guard something like a finger rest in Thompson and Carey; but what is there to lead any one to substitute a reciprocating tool with a guard in place of the cutter of Tayman or in place of the rotary tools of Thompson or Carey? I see nothing in either of these three patents which gives any light at all upon the question of how to hold a shoe to a reciprocating tool.

It seems to me a man would naturally leave the guard off of a reciprocating burnisher if he wanted to substitute such a burnisher for the rotating tools of Thompson or Carey, and would set the burnishing part of his reciprocating burnisher flush with the upper edge of the guard, just as the burnishing part of the Thompson and Carey tools are flush with the upper edge of the guard. But such a change would make a worthless machine. I don't see how the Tayman finger rest could be applied to the Gubault or Andrews machine; certainly it would be worthless on either of those machines, and I don't see anything to lead any man to think of applying a finger rest to either.

304

I know that no man can do practical work with a reciprocating burnisher unless he has both the guard and the finger rest to help him in going round the toe—that is, the guard between the sole and the finger rest. I know that I found this out, and I know that I never saw or heard of anything which put this in my mind.

CHARLES HENRY HELMS.

Sworn to Dec. 15, 1886.

Affidavit of George A. Fullerton. (*Filed Dec.* 20, 1886.)

GEORGE A. FULLERTON, of lawful age, being duly sworn, says:

I have been engaged in the manufacture and introduction of boot and shoe machinery ever since 1870.

I have been familiar with machines for trimming sole edges and for burnishing or setting sole edges from 1870, when Hodges first started, up to the present time.

During 1870 and until early in 1875 or the latter part of 1874, when I first saw the Helms machine, I was constantly engaged in perfecting or introducing machines for burnishing the edge of soles and heels of boots and shoes, and during a large part of that time I was occupied in perfecting a jack machine for edge-setting, the joint invention of James W. Maloy and myself. This was the only jack machine which would do practical work, but it was complicated and expensive. I thought highly of it, and had no doubt it was far superior to any other machine then known, until I saw Helms' machine. I then for the first time began to think it was possible to hold the shoe without a jack up to a reciprocating burnisher. I was familiar before that time with rotary burnishers and rotary trimmers and knew that a shoe could be readily held without a jack to those tools; but I knew also that no one had devised any way to hold a shoe to a reciprocating burnisher without a jack until Helms convinced me that he had, and I know of no other way of doing it except the way invented by Helms.

I have no doubt that Helms made a far greater invention
305 than any other of the numerous inventors who had before 1875 attempted to produce a machine for setting edges.

I personally knew at least nine of those inventors whom I can now call to mind, and there were many others of whom I had information, and know that I myself and each one of the other nine worked faithfully, diligently, and many of them with abundant supply of money, but we each and all of us failed, as did all the others; and as soon as I become fully acquainted with Helms' invention I knew we were on the wrong track and that Helms was on the right track. It struck me at the time that Helms was entitled to outrank us all as an inventor, and I have never doubted as to that until the decision of this court on the motion for rehearing.

A rotary burnisher will not do the work done by a reciprocating burnisher, and it has always been well known that the rotaries were wholly unfit to do that grade of work done by the reciprocating burnishers. Rotaries were on the market, and have been ever since I knew the market, which can be bought for less than one-sixth the price of the Helms machine, and which will do twice the number of pairs per day; but rotary machines do not compete and never have competed at all with the Helms, simply for the reason that they do a wholly different grade of work. No one would ever think of offering the Helms machine to a manufacturer making that grade for which a rotary was suitable, nor of offering a rotary to a manufacturer making the higher grades.

A finger rest is incapable of use with a rotary burnisher or a rotary trimmer, for it is in the way and would be useless if it was not in the way. I am certain that a finger rest never was used with any rotary machine. I know Tayman's patent describes a finger rest with a rotary trimmer, but I also know that rotary trimmers and

burnishers are widely used throughout the country, and I personally have seen them in use in almost every State in the Union where boots and shoes are manufactured, and I never saw one used with a finger rest.

Holding a shoe to a rotary tool is very different from holding a shoe to a reciprocating tool; so much so that while it was generally known before 1874 that it was an easy matter to hold a shoe to a rotary tool (whether trimmer or burnisher) no way was known to hold a shoe to a reciprocating tool except by a jack until Helms invented his way, and that is the only way now known.

306 The Gubault and Andrews patents describe machines which are worthless. It is, in my opinion, impossible to hold a shoe to the reciprocating tools of these patents, especially when going round the toe. You can't see the work; the workman must use his arms to very great disadvantage; the tools don't swivel, and even if a finger rest were applied to those machines they would still be worthless.

The Carey patent, No. 129,457, of 1872, also shows a worthless machine.

It is a modification of the rotary machine, such as is described in the Thompson patent, No. 50856—*if* that is, both have an adjustable guard separate from the tool; but Carey has four rotary tools, while Thompson has but one. The Carey machine never was used practically. I never saw but one, and that was tried and found to be a complete failure.

After Helms brought his first machine to Boston, early in 1875, I worked with him for several months, much of our time being occupied in the attempt to get rid of the swivelling tool, which was claimed broadly in the Ingalls patent, and I found it impossible to do away with the swivel of the tool.

The burnishing irons of the Helms machine are made to follow the trimmer, and vary in width of bed from No. 0 (that is, no bed, but guard and rand lip or bead, when there is one, meeting) up to No. 20, and in rare cases higher—that is, the bed of No. 20 is $\frac{20}{48}$ of an inch wide. The edge planes and rotary cutters, which are now largely used, vary in width of bed just the same as the burnishing irons, and the iron used is either the same style and size as the plane or cutter or else a trifle smaller. The leather of the sole thickens somewhat when applied to the burnishing tool—that is, when swelled by moisture and crowded up by the workman between the rand lip and guard of the tool, the upper inner surface of the guard in tools of the style shown in the Helms patent being in close, firm contact with the tread of the sole near the edge, the amount of contact varying slightly all the way round, say as little as one sixty-fourth or as much as a quarter of an inch.

This contact between the inner surface of the guard and the tread of the sole not only keeps the sole in proper relation with the tool, but also hardens and solidifies the tread corner of the sole.

307 I never have seen a burnishing iron without a guard, and for many years they have always had a rand lip. The guard is the main guide by which the sole is held properly to the tool. With-

out a guard the Helms machine is practically worthless, for while an expert might, as a feat, burnish a sole edge by taking great pains without a guard in his iron, yet no man could do anything like a fair day's work.

For upwards of five years I was an expert operator of the Helms machine and taught some hundreds of operators throughout the country. I was also the first man who learned to use the Helms machine so as to do what is now regarded as a fair day's work, and I know that the guard is absolutely essential. Of course, when the tool is too wide for the edge the rand lip must be kept upon the upper surface of the sole, and the guard does no work, unless indeed the leather thickens under the pressure enough to fill the space be- the rand lip and guard. In all good work on the Helms machine the sole is crowded up between the rand lip and guard, and it is simply impossible to do work practically unless the sole edge be so crowded up and touched by both, the rand lip on the upper corner and the guard on the lower corner. This is essentially true when going round the toe.

The Helms machine does not seem to me to be an instance of selection of old elements or a double use of old elements, for, as an inventor myself of many machines, I am well aware that the mere putting together of old elements is not invention. The tool with its rand lip, bead, bed, and guard was old, for all hand tools I ever saw had a bed and guard, and most of them a rand lip, while beads were common in many styles. The swivelling of the tool was old in Ingalls. The finger rest is described in the Tayman patent. The tool is reciprocated in Gubault and Andrews and in the Ingalls and other jack machines. Yet there is no doubt that Helms made of these old elements a totally new machine, for taking off the jack and adding the finger rest will not make the Ingalls machine the Helms, nor will it make a working machine of the Ingalls, and the same is true of all the jack machines. Besides, the finger rest is nothing like the jack. Adding a finger rest to the Gubault or Andrews machine will not make a working machine; I can't
308 see how you can use a finger rest with Andrews or Gubault unless you wholly alter and remake their machines by inclining the tool as in the Helms patent, making the tool swivel as in the Helms patent, and giving the tool and its guard the same relation with the finger rest which they have in the Helms patent; but all this was invented by Helms; and when these radical and vital changes are made you have the Helms machine and no longer the Gubault or Andrews. It is true the swivelling of the tool was taken from Ingalls, but that, in my opinion, doesn't lessen the merit of Helms as an inventor, for surely the combination of the tool and its guard with the finger rest is not hinted at in Ingalls nor in any other machine, and these three things operate together in a way altogether different from anything ever known before; and, moreover, no other way is known now to get the results which Helms was the first to obtain.

The Molliere, Thompson, Burns, and Carey patents (Nos. 13950, 50856, 97758, 129,457) show rotary tools with the guard separate

from the tool; but very few sole-edge irons are made in this way compared to those made as shown in Fig. 4 of Molliere—that is, with the guard in one piece with the iron, any one tool fitting only one style and size of edge.

The parts marked *y y'* in Molliere, F in Thompson, B in Burns, and *g* in Carey are not finger rests, but are rests for the face of the sole or heel; neither of these parts can be used as a finger rest; moreover, a finger rest is wholly useless with a rotary tool or with the rotary tools of Carey; the shoe is held, of necessity, in a wholly different manner in all these rotary machines from what it is in the Helms. A green hand can learn to use the Helms machine rather more easily than can a man who is skilled in the use of the rotary. In the rotary the operator stands at one side so that he can see the bed of the tool and also the rand lip and guard, holds the shoe with either the toe or the heel towards him, and moves the shoe towards and from his body, using only the muscles of his arms and hands.

In the Helms he stands directly in front of the tool, holds the upper portion of the shoe next his stomach with the sole across his body, and moves the shoe by swinging his body, using the muscles of legs and body as well as of his arms and hands—that is, to
309 do the sides of the sole; when doing the toe he grasps the shoe near and at the heel with the right hand (if he is right-handed) and holds the fore part of the shoe with the thumb and three fingers of the left hand and hooks the forefinger of the left hand around the finger rest, forcing the shoe up and slightly from him and swinging the shoe on his forefinger as an axis.

The operation of burnishing on a rotary is wholly different from the operation of burnishing on the Helms machine. Any ordinary workman can become expert on a rotary without instruction and after a few hours' practice, while it takes on the average at least two days of the instructor's time and several weeks of practice for a workman to come up to the average and several months' practice to become expert on the Helms.

In the exhibit diagrams the Helms, Molliere, Thompson, Carey, and Tayman machines are clearly and properly shown as to their main parts and as to the relation of the shoe to the rest for the face of the sole and the burnishing part of the tool. The parts *y'*, F, and *g* correspond to the flange which projects down from the back part of the Helms tool and to the flange which forms the rest for the face of the sole in Fig. 2 of the diagrams, except that the two latter rests are not adjustable, while the rest *y'*, F, and *g* are adjustable. To make a Helms machine with an adjustable rest for the face of the sole is not practical in any way known to me, for I have tried to do it and failed, because the sliding rest had to move with the tool instead of being fast to the frame of the machine, as in Molliere, Thompson, Burns, and Carey, and I found that the ink and heat together would crowd the rest and make it stick fast to the tool after a few hours' use, so I found it far better practically to make a tool for each size and style of edge, as shown in the Helms patent and as is also shown in Fig. 4 of the Molliere patent, Fig. 2 of the diagrams.

If a man should try to substitute a reciprocating tool for the rotary tool of Thompson and then use the adjustable rest F of Thompson as a finger rest the rest F would then be wholly useless as a rest for the face of the sole, for the finger rest and the rest for the face of the sole must be separate and distinct parts, as in the Helms machine, in order to be of any practical value.

GEORGE A. FULLERTON.

Sworn to Dec. 20, 1886.

310 *Affidavit of Henry Wheaton Howard.* (*Filed Dec.* 20, 1866.)

HENRY WHEATON HOWARD, of lawful age, being duly sworn, says:

I reside at Lynn, Massachusetts, and am in the employ of the Union Edge Setter Company and have been for about two years.

Before that time I was an operator on the Union, and for about a year was in the employ of the Haverhill Shoe Machine Company, working as to the introduction of the Trask edge-setter, a machine in which the shoe was jacked and the reciprocating tool was mounted in a handle. After a full trial this machine was found to be a failure; it could not compete with the hand tool in either quantity or quality. The Trask machine is not in use and has not been for about four years.

The finger rest in combination with the tool and its guard as described in the Helms patent are essential in order to do hand work on a machine.

I am familiar with rotary machines for trimming and for setting edges of soles, and I never saw or heard of a finger rest used with either; such a rest is not only useless, but would be in the way. There is no trouble in holding a shoe by hand to a rotary tool, but it is impossible to hold a shoe to a reciprocating burnishing iron by hand in any other way than that invented by Helms—that is, I don't know of any other way, never heard of any other way that is practical, and I know perfectly well that if I could find out some other way which was practical it would be of very great value to me. I don't know of an operator on the Union or any machine like the Union—I mean the Universal, American, Standard, and Shawmut, all of which are copied from the Union—who would not say the same. I never saw any machine except the Helms that could compete with hand work. A man with the Helms machines, by which I mean the Union and those like it, will do more than three times the work that he can do by hand and of full as good, if not better, quality.

The rotary setters are not adapted to the same grade of work as the reciprocating setters; the rotaries do cheap, inferior grades only.

No man can hold a sole properly to a reciprocating tool when going round the toe without a finger rest and a guard on the tool.

I never saw a burnishing iron without a guard.

311 Whenever I use the Helms the rand lip and guard form a groove, into which the sole is crowded. This groove is a perfect

guide for the sole edge, allows the shoe to be canted freely to bring the edge to bear evenly clear across the burnishing part of the tool, makes the tool swivel, supports both corners so as to finish both corners—that is, keeps the corners from burring up when moist from ink and under pressure—and, together with the finger rest, allows the operator to sweep the toe under the tool. No other machine that I ever saw or heard of operates any ways like the Helms.

In using the hand tool the rand lip and guard make a groove for the sole edge just as in Helms, but the tool is crowded over the edge. It's the other way in Helms; the tool is canted instead of canting the shoe as in Helms; the tool is swivelled by the wrist of the workman, while the operator has nothing to do with the swivelling of the tool in Helms; the lip and guard finish the corners in the hand tool the same as in Helms. As to the work done on the Helms by the guard and finger rest together, there is nothing like it in the hand tool or anywhere else. It seems to me as much of an invention as anything I ever saw. I don't know as it's all the invention, but I should say it was the nub of it. The Helms invention, I should say, lay in his finding out a way to hold a shoe by hand to a reciprocating tool. I don't know any other way to do it.

I know that Helms' machine is the only one ever invented which will do hand work, and I know that a great many men have tried to invent a machine which would do hand work, and that all of them failed practically; that's another reason why I feel sure that Helms made an invention.

HENRY WHEATON HOWARD.

Sworn to Dec. 7, 1886.

312 *Affidavit of Elliott F. Spinney.* (*Filed Dec.* 20, 1886.)

I, ELLIOT F. SPINNEY, of lawful age, being duly sworn, say: I reside in Lynn, Massachusetts, and am an operator on the Union edge-setter and have been for upwards of nine years, and previous to that for many years made edges by hand. Without the guard on the iron I could not do good work, especially round the toe. I never saw an iron without a guard for burnishing edges. The sole is crowded up between the guard and rand lip. The guard touches the bottom of the sole near the corner and holds the corner up and prevents it from rolling or squatting out. It also makes the iron swivel and keeps the rand lip from cutting into the edge. Without the finger rest and guard you could not get around the toe and do good work. The burnishing iron is the same size and shape as the trimming cutter; for soft stock the iron should be a little smaller. The stock swells when wet by the burnishing ink, and also thickens or spreads when pressed up against the iron, and this swelling and thickening makes the stock crowd between the lip and guard when the bed is pressed up against the bed of the iron. The guard and bed finish the tread corner and the lip and bed finish the rand corner. The shoe must be held so that the iron will press on the whole surface of the edge—that is, until the edge all over bears on the iron.

The work on rotary machines is inferior and cheap and altogether different from the work done on the Union. In many factories they make an edge without an outside bead—that is, a raised bead on the tread corner of the edge—and without the guard it would be impossible to make this edge, and in fact I never saw an iron without a guard for burnishing edges. In burnishing the edge around the toe the operator grasps the shoe near the toe, one finger grasping the finger rest, the heel of the shoe resting in the other hand; the shoe is then pressed up against the bed and guard, conforming also with the bead, and the shoe swung from right to left until it is properly burnished.

ELLIOTT F. SPINNEY.

Sworn to Dec. 10, 1886.

313 *Affidavit of Charles N. Ryder.* (*Filed Dec.* 20, 1886.)

I, CHARLES N. RYDER, being duly sworn, say: I reside in Lynn, Massachusetts; have been an operator on the Union edge-setter about ten years, and I have read the foregoing affidavit of Elliott F. Spinney and fully concur therein.

CHARLES N. RYDER.

Sworn to Dec. 9, 1886.

Affidavit of Patrick F. Bresnahan. (*Filed Dec.* 20, 1886.)

I, PATRICK F. BRESNAHAN, being duly sworn, do say: I reside in Lynn, Massachusetts. I have been an operator on the Union edge-setter nine years. I have read the foregoing affidavit of Elliott F. Spinney and fully concur therein.

(Signed) PATRICK F. BRESNAHAN.

Sworn to Dec. 8, 1886.

Affidavit of Joseph A. Lawler. (*Filed Dec.* 20, 1886.)

I, JOSEPH A. LAWLER, being duly sworn, say: I reside in Lynn, Massachusetts. I have been an operator on the Union edge-setter and rotary edge-setters about four years. I have read the foregoing affidavit of Elliott F. Spinney and fully concur therein.

JOSEPH A. LAWLER.

Sworn to Dec. 8, 1886.

Affidavit of Stephen E. Welch. (*Filed Dec.* 20, 1886.)

STEPHEN E. WELCH, being duly sworn, says:

I have already given an affidavit in this case.

I am familiar with rotary machines for burnishing and trimming sole edges, and I have seen them in use in all the New England States, all the Middle States, and most of the Western
314 States. I never saw or heard of one in which a finger rest was used. A finger rest is useless with any rotary sole-edge

tool. The workman stands facing the edge of the rotary tool, whether burnisher or trimmer, and has no difficulty whatever in holding the edge to the tool without a finger rest or any other aid to the hands. An ordinary man can use a rotary burnisher with average skill after an hour's practice. It takes longer to learn to trim with a rotary trimmer; but that is because the workman's eyes must be trained, for the shape of the soles and the bevels of the edge depend wholly upon the workman's eye.

An average workman requires the services of an instructor for more than two days on the average to learn to use the Helms machine. It certainly takes one, two days, often three, sometimes four, and now and then longer to teach a workman to use the Helms, by which I mean the Union, and includes the defendants' machines.

The workman does not stand the same with the Helms machine as he does with the rotaries, but stands facing the rand-lip side of the tool, and every motion of his hands, arms, body, and legs is unlike those with the rotary. I have always found that a green hand is easier to teach to use the Helms machine than a skilled workman on a rotary, because of the total change of position.

I am familiar with the patents to Molliere, No. 13950; to Thompson, 50856; Burns, 97758; Carey, 129,457, and Tayman, 136,790. The first four of these patents do not suggest a finger rest. The parts *y y'* of Molliere, F of Thompson, B of Burns, and *g* of Carey are guards or rests for the face of sole or heel and are the same as the flange or guard which forms a part of the rotary sole-edge tool of Molliere. If I were told to alter the Helms machine so as to make the guard adjustable I should have to fasten the guard to the tool instead of to the frame of the machine—that is, to make the lower lip or flange or rest for the face of the sole shown in Helms' patent separate from the tool—make the bed or burnishing part of the tool wide enough for the widest edge, and then fasten the rest for the face of the sole to the tool in some way so that I could adjust the rest for the face of the sole to suit the thickness of the edge. The Helms machine would be worthless if the rest for the face of the sole did not move with the tool. No machine is the Helms machine unless it has a rubbing surface, a flange projecting down from that
315 surface, and a finger rest back of that flange, and all this will be worthless unless the rubbing surface and the flange reciprocate together and swivel together, as described in the Helms patent.

The combination of the rubbing surface, flange, and finger rest is not shown in any of the patents above mentioned, nor is there anything in either of those patents or in all of them taken together which seems to me to lead a man up to the Helms combination.

The Gubault and Andrews patents show machines which are worthless. I know that no man can get round the toe with these machines and do anything like a fair job.

I also know that jack machines for doing the same kind of work done by hand workmen and the Helms machine are practically worthless because they cannot compete with hand work. I am familiar with four of them, all of which have proved failures—that is, good

work can be done upon them, but a hand-tool workman will do more work and better than a workman with the machine can do in the same time.

I know of no practical way to get round the toe while holding the sole edge in contact with a reciprocating rubbing surface except that described in the Helms patent, and I never heard of any other way, although I know that a good many skilled men have tried to find out some other way. There are but two practical ways now known for doing the work done on the Helms machine; one is by hand, the other by the Helms machine. But the machine has the advantage that one man can do with the Helms machine at least three times as much work as can be done by hand in the same time, and the quality of the work done on the Helms machine will average better than hand work.

STEPHEN E. WELCH.

Sworn to Dec. 18, 1886.

Affidavit of Israel H. Corson. (*Filed Dec.* 20, 1886.)

ISRAEL H. CORSON, of South Braintree, Massachusetts, and of lawful age, being duly sworn, says:

I have been familiar with rotary trimmers for upwards of eight years and with rotary burnishers for upwards of nine years.

316 I have seen — in use in New Hampshire, Maine, and Massachusetts in different shops, and I never saw or heard of one with any rest for the fingers or any part of the hand. The hands must be free to hold the shoe to a rotary tool, and any rest would be in the way. A man stands facing the edge of the rotary tool with the heel or toe of the shoe towards him.

ISRAEL H. CORSON.

Sworn to Dec. 20, 1866.

Deposition of Edwin E. Moore. (*Filed Dec.* 20, 1886.)

EDWIN E. MOORE, of Boston, Mass., of lawful age, being duly sworn, deposes and says:

I have been familiar with rotary trimmers for upwards of five years and with rotary burnishers for upwards of five years.

I have seen them in use in fifteen or twenty different shops, and I never saw or heard of one with any rest for the fingers or any part of the hand. The hands must be free to hold the shoe to a rotary tool, and any rest would be in the way. A man stands facing the edge of the rotary tool with the heel or toe of the shoe towards him.

EDWIN E. MOORE.

Sworn to Dec. 20, 1886.

317 Circuit Court of the United States, District of Massachusetts.
In Equity.

THE UNION EDGE SETTER COMPANY
v.
CUMMINGS *et al.* and PROUTY *et al.* } No. 2313, No. 2319.

Deposition of George E. Walker. (*Filed Jan.* 3, 1887.)

I, GEORGE E. WALKER, of Lynn, Mass., being duly sworn, do on oath depose and say that my age is fifty-four years; that for the past thirty-five years I have been practically engaged at shoemaking. I learned the trade at hand work first, and worked for some years at that branch of the business. Over twenty years ago I became foreman, and am now employed as foreman for Amos F. Breed, of Lynn, shoe manufacturer. I have for thirty-five years been acquainted with all the tools employed in hand-finishing boot and shoe sole edges, and I have, sincethe introduction of shoemaking machinery, been familiar with the details thereof as employed in finishing sole edges, and, in so far as regards the burnishing of sole edges by means of a reciprocating tool, there has been no change in the tool except styles during the past thirty-five years and no change in its use or in the manner of using it except to drive it by steam power instead of hand power; but, in so far as relates to the action of the burnishing iron upon the sole edge and the result produced, it is the same now in every respect that it has been ever since I have worked at this business. When we burnished by hand the shoe was held by one hand and the iron was moved back and forth by the other hand, the rand of the sole being always next the eye of the operator, so that he could keep the rand lip of the iron properly
318 pressed against the rand to give it the proper finish; and in using machine burnishers the rand is always toward the oporator, just as in hand burnishing, and for the same reason; and if the whole length of the fore-part edge is of the same thickness—as is the case with the highest priced work—then both the rand lip and the guard may bear against the sole; but with common work, not having the sole of uniform thickness, the rand lip is kept against the rand and the guard can only touch the sole at the thickest part thereof. Take any burnishing iron and secure it in a handle and burnish one shoe of a pair with it by hand, and then secure the same iron in the power burnisher called the Union machine and burnish the other shoe of the pair, and there will be no possible difference in the effect produced upon the sole edge of the two shoes if equal skill be employed, and there will be no sort of difference in the operation of the burnishing iron, its rand lip, or guard while burnishing one shoe than while burnishing the other. It is an impossibility for the same iron when burnishing the same sole edge to act in any different manner, to produce any different result or product, when driven by power in any edge-setting machine than when used by hand, for a burnishing iron is only a burnishing iron, however moved, and the same iron must always do its work in the same way, whether used by hand or in a machine, with the same result or product, if the

leather being burnished and the skill of the operator be the same. The finger hook employed in the Union edge-setting machine is, of course, convenient at the toe part of the sole, but it does not change or modify in any manner the action or effect of the burnishing iron, for the burnishing iron in that machine has the same motion, operates in the same manner, and produces the same result in all respects that it did when all sole edges were burnished by hand.

GEORGE E. WALKER.

Sworn to Dec. 28, 1886.

Affidavit of Charles L. Parker. (*Filed Jan.* 3, 1887.)

I, CHARLES L. PARKER, of Lynn, Massachusetts, being duly sworn, do on oath depose and say that my age is forty-six years. I have for over thirty years had practical acquaintance with shoe-sole edge burnishing by hand tools, and have been acquainted with the
319 various edge-burnishing machines, including the Union edge-burnisher, so called, since their introduction. I am at present foreman of the hand-work department at the factory of Valpy & Anthony, at Lynn.

There is no sort of difference either in the burnishing tools themselves or the manner of their operation or in the effect or result which they produce when used by hand or in the Union edge-setting machines. These facts are apparent from my common practice whenever I wish to hand-finish a sole edge of a size or style different from any hand tool that we have, for I then secure the proper machine tool—such as used in the Union machine—in a handle and use it as a hand tool, and the same tool, its rand lip and guard operate the same and produce the same, identical result when used in the machine or by hand. The shoe in both cases is held with the rand towards the operator so that he can keep the rand lip upon the rand, and the tool is impelled by short movements along the sole edge, and the guard, if the sole be of uniform thickness, bears against the sole close to the edge; but if the sole be of uneven thickness—as is the case with all but the best quality of work—then the guard only touches the sole at its thickest places. The introduction of burnishing machines has not effected any change, either in the burnishing irons themselves nor in the way or manner of their operation upon the sole, nor in the effect or result which they produce upon the sole. The only change has been that the burnishing iron is moved back and forth by steam power instead of by hand. The finger hook employed in the Union edge-setter is a convenience; but the burnishing iron employed at the same time is doing just what it did long before that machine was heard of, and is producing just what it always did and what it will now produce without the hook.

CHARLES L. PARKER.

Sworn to Dec. 28, 1886.

Affidavit of John B. Morrison. (*Filed Jan.* 3, 1887.)

I, JOHN B. MORRISON, of Lynn, Massachusetts, being duly sworn, do on oath depose and say that my age is fifty-four years. I have for thirty-five years been practically engaged in the manufact-
320 ure of boots and shoes. I have been employed as foreman in various shops and factories, and had the care of hundreds, if not thousands, of workmen in this business. I am at present engaged as a foreman at Valpy & Anthony's factory, at Lynn. I was practically familiar with the method of burnishing sole edges by hand before the introduction of power machines for that purpose, and I am also familiar with the various machines, including the Union edge-setter, for burnishing sole edges. The introduction of any or all of these machines has not led to any change whatever, either in the burnishing iron itself or in its mode of operation or in the result, effect, or product of the iron. The only change consists in the fact that the iron is moved by steam power instead of the muscles of the operator. The shoe has always been held and is now held with the bottom or face of the sole away from the operator, so that he can see and control the action of the rand lip upon the rand itself, and the guard may or may not touch the face of the sole, just according as the sole is even or uneven in thickness, all but the best work having soles uneven in thickness. The finger hook used on the Union edge-setter is a matter of convenience, but it does not in any manner affect or change the action of the burnishing iron or the effect it produces, for the hook is never used except at the toe part of the sole, and that part when finished is in no respect better done than the other parts of the edge, and this hook does just what it would in any other machine—it furnishes an object for the operator to grasp with his finger, and is convenient, but not indispensable.

JOHN B. MORRISON.

Sworn to Dec. 28, 1886.

Affidavit of William B. Cushing. (*Filed Jan.* 3, 1887.)

I, WILLIAM B. CUSHING, being duly sworn, do on oath depose and say that my age is forty-three years. I reside at Lynn, Massachusetts, and am a shoe manufacturer at that place. I have had practical experience in this business for twenty-five years as a workman and a manufacturer. I am familiar with the various methods of finishing boot and shoe sole edges, and am familiar with the Union edge-setting machine, so called, and with the operation thereof.

321 The burnishing irons used in that machine differ in no respect from those used by hand, both before and since the introduction of burnishing machines, and the irons used in the Union edge-setting machine operate in the same, identical manner and produce the same, identical result as when used by hand. The

hand operators and the machine operators always hold the boot or shoe with the bottom or face of the sole from them so as to bring the rand next the eye of the operator, because the rand lip of the iron must always be kept in contact with the rand of the sole in order to properly finish the latter.

The longer lip or guard of all burnishing irons, whether used in burnishing machines or by hand, is the same and performs the same duty. It serves as a guide when bringing the iron and sole edge together, and if the fore part of the sole edge be of uniform thickness, then the guard usually bears against the bottom or face of the sole close to the edge; but if the sole be of uneven thickness, as is the case with all but the highest grades of boots and shoes, then the guard can only touch the sole at the thicker part of the sole, as the rand lip is kept against the rand to burnish it. The only change in the use of the burnishing iron that burnishing machines have effected consists in the fact that the iron is moved back and forth by steam power instead of by hand, for the boot or shoe is held in the same position relatively to the operator; the iron, its rand, lip, and guard are the same; it acts or operates the same and produces the same effect or result in all respects upon the sole as when the iron was used by hand.

Any reciprocating burnishing iron may be used alternately by hand (by securing it in a proper handle), and then in the Union edge-setting machine and the work done upon the sole will be the same if the same skill be exercised, because the iron is made to perform a certain duty and it is impossible for it to vary the performance of that duty by doing anything else or something else at the same time. The finger hook in the Union edge-setter is a convenience, as the operator can get round the toe part of the sole faster than without it, but the action, effect, and result of the iron is in no respect changed by the hook, for the iron always operated as it does in that machine and produced quite as good work, and
322 the hook in that machine does just what it would in any other or with any other iron—it furnishes something for the operator to grasp with his finger, if he wishes, and is therefore convenient, but not indispensable.

WILLIAM B. CUSHING.

Sworn to Dec. 28, 1886.

Affidavit of Robert Ashe. (*Filed Jan.* 3, 1887.)

I, ROBERT ASHE, of Somerville, in the State of Massachusetts, being duly sworn, do on oath depose and say that my age is forty-five years, and my occupation machinist. I worked at shoemaking by hand from 1858 to 1861 and again in 1865 and 1866; during these periods the edge-finishing was done by hand work. Since 1868 I have worked at the manufacture of boot and shoe machinery, and have invented and patented various improvements in edge-finishing and other shoe machines; and I am familiar with the method of trimming sole edges by rotary cutters and burnishing sole edges by

a vibrating burnishing iron operated in a power machine, among which machines is the Union edge-setter, so called. From 1873 to 1880 I was employed at Birmingham and Stafford, in England, superintending the manufacture of boot and shoe machinery, and while there I had occasion to visit many shoe factories in England and France. Among the machines which I saw in practical operation in England was a machine made like that shown in the English patent No. 59, of 1874, granted to Alfred Christmas Andrews; with the single exception that instead of employing a smooth and toothed truck or wheel as a part of his rand lip he had discarded those two wheels and had filled the cavity in the burnishing iron which they had at first occupied by a smooth truck of the thickness of the former two, and this thicker truck was locked so as to be non-rotative and to therefore act just as if it had been an integral part of the burnishing iron. This machine was provided with burnishing irons to work singly, as shown in sheet 1 of Andrews' drawings, and with irons to operate in pairs, as shown in Fig. 6 of said drawings.

323 These burnishing irons were made like that shown in Figs. 3, 4, 5 of said drawings, with exception stated in relation to the trucks, by which the iron was made, to all practical intents, a single piece. This last-described construction of the burnishing iron is shown in Figs. 6 and 7 of Andrews's patent, where a single and smooth truck is shown as secured by a screw. The work done on this machine was first quality, equal to the best they can do now on any burnishing machine with which I am acquainted, but the machine was not speeded so high, nor could the quantity of work be done upon it that they are now doing on machines in this country.

I also saw, in 1878, while in England, a machine like that shown in English patent No. 879, of 1868, granted to P. F. Gubault, a model of the burnishing part whereof is an exhibit in this case. This machine was being operated in Leicester, England, at the factory of Stead, Simpson & Nephew, and was performing good, salable work. I also saw one of these machines in operation in the shoe-machinery department of the French division of the last Paris exposition. The burnishing irons in the Andrews and Gubault machines were performing precisely the same work that such irons have always performed when used by hand or that such irons perform when used in any other burnishing machine. They operated by a short reciprocating motion, the shoe was held by the hands of the operator, with the rand upwards towards him, and the operator pressed the shoe against the iron with the requisite force to produce the desired friction upon the sole edge. All these conditions are found and are complied with in complainant's machine, and the burnishing iron in the Union machine performs no other duty or function and accomplishes no different result than did the iron in the Andrews and Gubault machines or when it was used by hand, for the iron has been put into machines for but one purpose—to substitute steam power for hand power, so that the operator could do more work—and not to cause the iron to effect any different result or to act in any new way, for it is put into the machine to do just what it al-

ways has, and no more, no less, or in any manner different. The finger hook employed in complainant's machine is convenient, but not indispensable. It is only used at the toe, and the action and effect of the burnishing iron at that part of the sole is not
324 in any respect different from what it is at the other parts of the sole where the hook is never used. The hook in the Union machine performs just the same office that it did in Tayman's machine. It is an object which the operator may grasp with his finger to steady his work, and the operator in using either machine will use the hook when it is desirable, and when not desirable he will not utilize it.

ROBERT ASHE.

Sworn to Dec. 31, 1886.

325 The following is the opinion of the court upon the first hearing, directing a decree for complainant:

Circuit Court of the United States, District of Massachusetts. In Equity.

UNION EDGE SETTER COMPANY
v.
GEORGE E. KEITH. } No. 2124.

Opinion of the Court. (*August* 19, 1886.)

COLT, *J.:*

This bill in equity for injunction and account is brought on the Charles H. Helms patent, No. 173,284, dated February 8, 1876, for improvements in sole-edge burnishing machines.

The machine is a simple one, consisting of a finger rest and a reciprocating burnishing tool which has a lip or guard projecting from its rear edge. The workman holds the shoe in his hands and presses the edge up against the tool, which reciprocates with great rapidity. The finger rest enables the workman to hold the shoe when burnishing around the toe. Whether the finger rest has another function—that is, whether by the terms of the patent the sole was intended to be pressed against its upper surface—is the important question in this case. If the plaintiff's construction of the patent can be maintained I am satisfied it is entitled to a decree, because infringement by defendant's machine is apparent and because the combination covered by the first claim, when so construed, is new, useful, and not found in prior machines. This seems
326 so clear that I deem the further discussion of the question of anticipation or infringement unnecessary. On the other hand, if the defendant's construction of the patent be correct, it is manifest that the charge of infringement cannot be maintained, because defendant's machine lacks one of the material elements of the combination embraced in the first claim of the patent, which is alone in controversy in this case. Under these circumstances it becomes necessary to examine with care the specification and drawings of the.

patent to ascertain, if possible, the true construction of the first claim.

The controversy between the parties is this: Does the expression "the rest for the face of the sole," which is made an element of the first claim, refer to the lower flange or guard which projects from the bed of the tool, or does it refer to the upper surface of the finger rest below the tool? The specification says:

"My machine is extremely simple, and consists of a head or standard carrying a tool-holder holding a tool for setting or burnishing the edges of the soles of boots and shoes, and a finger rest to aid the workman in holding the edge up to the tool and the face of the sole against the rest which is just below the burnishing part of the tool. The drawings represent the best part of my machine, A being the head, B the tool-holder, C the tool, and D the finger rest. * * *

The operation is as follows: * * * The workman passes (presses) the edge up against the tool and the face of the sole against the surface which projects below the tool and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger rest D, especially when burnishing the corners of the toes.

* * * * * *

The combination of the finger rest D with the burnishing tool and the rest for the face of the sole is the main feature of my invention. All the other points of novelty in my machine also relate to new combinations of old elements.

327 What I claim as my invention is—

1. In combination with the burnishing tool and the rest for the face of the sole, the finger rest D, substantially as described."

It will be observed that the specification first describes "the rest for the face of the sole" as "the rest which is just below the burnishing part of the tool," and again as "the surface which projects below the tool." The first expression seems quite clearly to refer to the flange or guard which projects from the tool and against which the sole rests; the second expression is ambiguous, and might well refer to the upper surface of the finger rest. When, however, we read the language of the patent in connection with the drawings the meaning becomes plain. The drawings, I think, fairly show that the sole could not rest on the finger rest in the operation of burnishing. This seems to conclude the question. Again, it will be observed that the burnishing tool is throughout coupled with the rest for the face of the sole. The language is—

"The combination of the finger rest D with the burnishing tool and the rest for the face of the sole is the main feature of my invention."

"In combination with the burnishing tool and rest for the face of the sole, the finger rest D, substantially as described."

Much weight is given by the defendant to the proceedings in connection with Helms' application for a patent as bearing upon the correctness of the construction that Helms referred to the finger rest as the rest for the face of the sole.

In his original specification he said:

"The finger rest D is the main feature of my invention, all the other points of novelty in my machine relating to new combinations of old elements. What I claim as my invention is, first, in a burnishing machine the finger rest D, constructed and operating substantially as described."

328 The examiner holding that this claim was anticipated by the Tayman patent of March 11, 1873, which shows a finger rest, thereupon the first claim was amended so as to read as follows: "First, in combination with the burnishing tool and rest for the face of the sole, the finger rest D, substantially as described." The examiner replied, under date of January 11, 1876, as follows:

"Attention is called to the fact that the finger rest in the above-cited case is stated to be the main feature of the alleged invention. A rest for the same purpose is shown in Tayman's patent, and the other elements claimed in combination have been shown by the references to be old separately, and if the finger rest performs any new function in this instance in combination with the tool and holder here used, it should be clearly stated.

"It is not understood what is meant by the words in the first claim now presented, viz., 'the rest for the face of the sole.' Additional amendment is therefore necessary before the case can be further considered."

In reply to this the specification was amended in the following particulars and the patent granted:

"(1.) By inserting immediately after the words 'to aid the workman in holding the edge up to the tool' the words 'and the face of the sole against the rest which is just below the burnishing part of the tool.'

"(2.) By inserting immediately after the words 'the workman presses the edge up against the tool' the words 'and the face of the sole against the surface which projects below the tool.'

"(3.) By erasing the paragraph immediately before the words 'what I claim as my invention is' and substituting therefor the following:

"'The combination of the finger rest D with the burnishing tool and the rest for the face of the sole is the main feature of my invention. All the other points of novelty in my machine also relate to new combinations of old elements.'"

329 Undoubtedly Helms at first considered the finger rest as the main feature of his invention until he was referred to the Tayman patent. He then adds a new element to the first claim, which is "the rest for the face of the sole." The examiner then calls his attention to the fact that he has made the finger rest the main feature of this invention, and, further, that if the finger rest performs any new function in combination with the tool and holder it should be clearly stated, and that it is not understood what is meant by "the rest for the face of the sole." Helms replies by making the whole combination of the first claim, including the rest for the face of the sole, the main feature of his invention, and by explaining what he meant by the words "rest for the face of the sole," which he

had just incorporated into the first claim by amendment but had not referred to in his specification. He nowhere states that this refers to a new function of the finger rest nor does he claim any new function for the finger rest.

At the argument I was by no means free from doubt as to the meaning of the patent. The position taken by the defendant at that time struck me with much force, but, upon careful consideration of the specification in connection with the drawings, I am satisfied that the defendant's view cannot be maintained. Undoubtedly, upon the evidence, Helms started with the idea of making the upper surface of the finger rest a rest for the face of the sole. The plaintiff contends that this feature was abandoned some months before the patent was granted. In view of the drawings and specification, the plaintiff's evidence on this point must be believed. Whether or not the sole edge of a shoe can be burnished with the sole resting against the face of the finger rest, and were in fact so burnished in the first machines made by Helms, becomes immaterial in view of the
330 fact that the court has found that in the machine as patented the sole does not rest against the finger rest in the operation of burnishing. I am aware that the defendant seeks to prove that the sole rests against the finger rest in the Helms machine as organized in the patent, but in my opinion neither the drawings nor the evidence support his theory.

Decree for complainant.

331 The following is the rescript of the court granting the rehearing in this cause:

Circuit Court of the United States, District of Massachusetts.

UNION EDGE SETTER COMPANY *v.* GEORGE E. KEITH. } No. 2124.

SAME *v.* DAVID CUMMINGS *et al.* } No. 2318.

SAME *v.* GEORGE P. PROUTY *et al.* } No. 2322.

Rescript, Nov. 3, 1886.

In the case of the Union Edge Setter Company *v.* George E. Keith, the main question considered in the briefs of counsel and upon the argument related to the proper construction of the Helms patent. While the question whether the first claim of the Helms patent (assuming the plaintiff's construction of the meaning of the patent to be correct) contained a patentable combination was undoubtedly raised, yet I did not give it that consideration I should have done had not my attention been mainly directed to the meaning of the

patent. This question has now been more fully heard, and the result is that Judge Carpenter and myself have grave doubts whether, in view of what was old and well known in the art, the first
331*a* claim of the Helms patent contains a patentable combination.

We think the motions for a preliminary injunction in the Prouty and Cummings cases must be denied, and the petition for a rehearing in the Keith case should be granted.

So ordered.

332 The following is the opinion of the court upon the rehearing of this case, in accordance with which the bill of complaint was dismissed June 6, 1887:

Circuit Court of the United States, District of Massachusetts. In Equity.

UNION EDGE SETTER COMPANY *v.* GEORGE E. KEITH. } No. 2124.

SAME *v.* DAVID CUMMINGS *et al.* } No. 2318.

SAME *v.* GEORGE P. PROUTY *et al.* } No. 2322.

Opinion of the Court (June 6, 1887).

COLT, *J.:*

The question of the patentability of the first claim of Helms's patent, No. 173,284, has been fully argued in the rehearing granted in the suit against Keith. The claim is for the combination of the burnishing tool, rest for the face of the sole, and finger rest in a machine for burnishing sole edges. It is not denied that the burnishing tool with a guard or, as Helms calls it, "rest for the face of the sole," is old, and a finger rest is also found described in a prior patent granted to B. J. Tayman March 11, 1873. The defendants contend that the first claim of the Helms patent is for a combination of old elements, each element having substantially the same function as in prior devices, and that no new result ts produced, and that therefore the combination is not patentable under well-settled rules of law. While the argument of the plaintiff is ingenious, I do not think this position of the defendants has been successfully met.
332*a* The main ground on which the plaintiff seeks to sustain the patent is that Helms, by means of the guard aud finger rest, is able to present a shoe to a reciprocating tool, and that this is a very different thing from presenting a shoe to a rotary cutter or burnisher; in other words, that Helms was the first to solve the difficulty of how to present a shoe to a reciprocating rubbing tool, and that this required invention. But the practical question is, What

means does Helms employ for this purpose, and are those means old and well known?

Now, we find reciprocating tools for burnishing sole edges to be old. We find the Helms burnishing tool with a guard to be as old as the old hand tool, and we find the finger rest clearly set out in the Tayman patent, and other forms of rests are referred to in prior patents.

To employ an old hand tool on a reciprocating machine in connection with a Tayman finger rest to accomplish an old result is not a patenable combination. That the Tayman finger rest is found on a rotary cutter or burnisher, and that rotary cutters can be used without the finger rest, does not do away with the fact that we find described in the Tayman patent a finger rest, and that when Helms takes that he takes what is old and well known. I am unable to discover, though the argument is presented with much refinement of reasoning, that either the guard, finger rest, or tool in the Helms machine performs any such new function; never before performed in prior machines, as to make the third claim a patentable combination. The bill against George E. Keith should be dismissed with costs, and it is so ordered. In the cases against Cummings *et al.* and Prouty *et al.* the motions for injunctions are denied.

Judge Carpenter, who sat with me on the first motion for a rehearing in the Keith case, agrees with the conclusion I have reached.

333 *Bond to Party on Appeal.*

Know all men by these presents that we, the Union Edge Setter Company, a corporation under the laws of the State of Connecticut, as principal, and George H. P. Flagg, of Boston, and Dean Peabody, of Lynn, both in the State of Massachusetts, as sureties, are held and firmly bound unto George E. Keith, of Brockton, in said State of Massachusetts, in the full and just sum of one thousand dollars, to be paid to the said George E. Keith, certain attorney, executors, administrators, or assigns; to which payment, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly and severally, by these presents.

Sealed with our seals and dated the twentieth day of June, in the year of our Lord one thousand eight hundred and eighty-seven.

Whereas lately, at a circuit court of the United States for the district of Massachusetts, in a suit in equity depending in said court, between said Union Edge Setter Company, complainant, and said George E. Keith, defendant, decree was rendered against the said Union Edge-Setter Company, and the said Union Edge Setter Company having obtained an appeal to remove the said cause to the Supreme Court of the United States to reverse the decree in the aforesaid suit, and a citation directed to the said George E. Keith, citing and admonishing him to be and appear at a Supreme Court of the United States to be holden at Washington on the second Monday of October next:

Now, the condition of the above obligation is such that if the said

Union Edge Setter Company shall prosecute its said appeal to effect and answer all damages and costs if it fails to make its plea good, then the above obligation to be null and void; otherwise to remain in full force and virtue.

THE UNION EDGE SETTER COMPANY,
By G. H. P. FLAGG, *Pres't.* [L. S.]
G. H. P. FLAGG. [L. S.]
DEAN PEABODY. [L. S.]

Signed, sealed, and delivered in presence of—
J. S. BALL.

Approved.
T. W. PORTER,
Of Counsel for Def't.

A true copy of the bond taken by the judge at the time of allowing the appeal named in said bond, which bond is on file in the office of the clerk of the circuit court of the United States for the first circuit and district of Massachusetts.

Attest:

____ ____,
Clerk U. S. C. C., Mass. Dist.

334 *Clerk's Certificate for Volume I.*

UNITED STATES OF AMERICA, *Massachusetts District,* } *ss:*

I, John G. Stetson, clerk of the circuit court of the United States for the first circuit and district of Massachusetts, certify that the foregoing is a true copy of the record of said circuit court, the evidence in part, the opinions of the court, and the bond on appeal in the cause in equity entitled Union Edge Setter Company *v.* George E. Keith, in said circuit court determined.

And I further certify that this volume, entitled "Transcript of Record, volume I—record, evidence in part, opinions of the court, bond on appeal," and an accompanying volume, having my certificate of even date herewith thereto annexed, entitled "Transcript of Record, volume II," and containing the pleadings and evidence in the case of the Union Edge Setter Company *v.* B. F. Spinney *et al.*, together contain a true copy of the record and of all proceedings, including the evidence used at the hearings thereof and the opinions of the court, in said first above entitled cause, in said circuit court determined.

In testimony whereof I hereunto set my hand and affix the seal of said circuit court, at Boston, in said district, this first day of August, in the year of our Lord one thousand eight hundred and eighty-seven, and of the Independence of the United States the one hundred and twelfth.

Seal of the Circuit Court, Massachusetts.

JOHN G. STETSON, *Clerk.*

334*a* Circuit Court of the United States, District of Massachusetts. In Equity.

UNION EDGE SETTER COMPANY
v.
GEORGE E. KEITH. } No. 2124.

Transcript of Record, Volume II.

Circuit Court of the United States, District of Massachusetts. In Equity.

UNION EDGE SETTER COMPANY
v.
B. F. SPINNEY *et al.* } No. 1758.

Pleadings and Evidence.

J. E. Maynadier, Esq., of counsel for complainant; Thos. Wm. Clarke, Esq., of counsel for defendants.

335 Circuit Court of the United States, District of Massachusetts. In Equity.

UNION EDGE SETTER COMPANY
v.
B. F. SPINNEY *et al.* } No. 1758.

Bill of Complaint. (*Filed June* 21, 1882.)

To the judges of the circuit court of the United States for the district of Massachusetts:

The Union Edge Setter Company, a corporation under the laws of the State of Connecticut and a citizen of said State, brings this its bill of complaint against Benjamin F. Spinney and L. P. Bartlett, Jr., both of Lynn, in the State of Massachusetts, and citizens of said State.

And thereupon your orator complains and says that heretofore, and before the seventh day of December, 1875, one Charles H. Helms was the original and first inventor of a certain new and useful improvement in sole-edge burnishing machines, not known or used before and not in public use or on sale for more than two years prior to his application for a patent therefor.

And your orater further shows unto your honors that said Helms, so being the inventor of said improvement in sole-edge burnishing machines, made application to the proper department of the Government of the United States for letters patent in accordance with the then existing acts of Congress, and duly complied in all respects with the conditions and requirements of said acts,
336 and that on the eighth day of February, 1876, letters patent of the United States numbered 173,284, signed, sealed, and executed in due form of law, for the said invention or discovery were issued to the said Helms, whereby there were secured to him, his heirs, executors, administrators, or assigns, for the term of sev-

enteen years from the eighth day of February, 1876, the full and exclusive right of making, using, and vending the said invention or discovery throughout the United States and the territories thereof; all which by said letters patent or by a duly certified copy thereof, now in court produced and shown to your honors, will more fully appear.

And your orator further shows unto your honors that before the first day of January, A. D. 1880, by mesne assignments, duly recorded in the United States Patent Office, all right, title, and interest in, to, and under said letters patent became vested in your orator; all which by said assignment, with the certificate of the recording thereof thereto annexed, or by duly certified copies thereof, now in court produced and shown to your honors, will more fully appear.

And your orator further shows unto your honors that the exclusive right so vested in your orator is of very great value and importance, and that the said patented inventions have been extensively used, and that the demand therefor is very large, and that your orator and its predecessors created said demand at large expense, and have hitherto had undisturbed possession of the market and is now abundantly able to supply the demand.

Yet the defendants, well knowing the premises and the rights secured to your orator as aforesaid by the letters patent No. 173,284, dated February 8, 1876, and utterly disregarding the same, have, at Lynn, in said district, and at divers other places in the United States, in violation of the rights secured by said letters patent, and ever since the first day of January, 1881, unlawfully used the said patented invention and sole-edge burnishing machines embodying the same, and although notified of the infringement and requested to desist therefrom, still continue so to do; and the defendants have derived and are still deriving from such use of said invention large gains and profits, but to what amount your orator is ignorant and cannot set forth; and your orator is greatly damaged by
337 such wrongful acts and doings of the defendants, to wit, in the sum of ten thousand dollars.

And your orator further shows unto your honors that it will be subject to great and irreparable damage unless your honors will grant the relief hereby sought.

To the end, therefore, that the defendants may upon oath full, true, direct, and perfect answer make to all and singular the matters hereinbefore stated and charged as fully and particularly as if the same were hereinafter repeated and they thereunto distinctly interrogated, according to the best of their knowledge, information, and belief;

And that the defendants and the attorneys, agents, servants, and workmen of the defendants may be enjoined perpetually and also during the pending of this suit, by writs of injunction to be issued by this honorable court, from making, using, or selling the invention patented in said letters patent No. 173,284 or any material and substantial part thereof claimed therein as new;

And that the defendants may be decreed to account for and pay over

to your orator all the gains and profits that have accrued to them from using said inventions or any material and substantial part thereof claimed in the said letters patent No. 173,284 as new, and that the damages sustained by your orator may be assessed and the defendants be decreed to pay over to your orator, in addition to such gains and profits, the damages your orator has sustained by such unlawful acts and doings;

And for such other and further relief as to your honors may seem meet:

May it please your honors to grant unto your orator not only the writs of injunction conformable to the prayer of this bill, but also the writ of subpœna, directed to said Benjamin F. Spinney and L. P. Bartlett, Jr., commanding them to appear and answer to this bill of complaint, and to do and receive what to your honors seem- meet.

And your orator will ever pray.

THE UNION EDGE SETTER COMPANY,
By G. H. P. FLAGG, *President.*

J. E. MAYNADIER, *Of Counsel.*

338 *Defendants' Answer.* (*Filed, by Consent, as of September Rules.*)

The joint and several answer of Benjamin F. Spinney and L. P. Bartlett, Jr., to the bill of complaint exhibited against them by The Union Edge Setter Company.

These defendants, now and at all times saving and reserving unto themselves all and all manner of benefit and advantage of exception that may or can be had or taken to the many errors, uncertainties, insufficiencies, and imperfections in the complainant's said bill of complaint contained, for answer thereto or unto so much and such parts thereof as they are advised it is material or necessary for them to make answer unto, answering, say:

1. That they have no knowledge or information, save by said bill of complaint, whether or not the complainant is a corporation duly organized under the laws of Connecticut, and therefore do not admit the same, but leave the complainant to make such proof thereof as it may be advised is material.

2. That these defendants are informed and believe that letters patent of the United States were granted to one Charles H. Helms, dated February 8, 1876, and numbered 173,284, for an improvement in sole-edge burnishing machines; but they deny that the said Helms was the original and first inventor of the alleged improvement therein set forth and described.

3. That these defendants are not informed, save by said bill of complaint, whether or not the said letters patent No. 173,284 were assigned to the complainant by mesne assignment of record before January 1, 1880, as alleged in said bill, and therefore, not admitting, leave the complainant to make such proof of the same as it may be advised.

4. That these defendants have no knowledge or information as to

whether the alleged invention purporting to be secured to said Charles H. Helms by letters patent No. 173,284 is of great value, or whether the same has been extensively used, or whether the
339 said complainant and its predecessors have created a demand at a great expense, or whether the said complainant is able to supply the demand for such articles, or whether any demand exists or has ever existed, and therefore do not admit or deny, but leave the complainant to make such proof thereof as it may be advised is material.

5. That these defendants deny that the complainant's rights under said letters patent No. 173,284 have been heretofore respected, as alleged, but upon information and belief aver the contrary to be true; and they deny that since the first day of January, 1881, or at any other time they or either of them have, within the State and district of Massachusetts or elsewhere, in any way or manner, infringed or violated any rights granted or purported to be granted to said Charles H. Helms by or under said letters patent No. 173,284.

6. That these defendants deny that the said Charles H. Helms was the original and first inventor or discoverer of the supposed invention described and claimed in the said letters patent No. 173,284, or was the original and first inventor or discoverer of divers material and substantial parts of the thing patented to him; but, on the contrary, upon information and belief, they aver and charge the fact to be that long prior to the alleged invention of the said Helms embodied in letters patent No. 173,284 the same improvements in sole-edge burnishing machines or substantial and material parts thereof were known to and publicly used by many persons in this country and elsewhere, and were known to and used by —— Britchett, of ——, at Belfast, Me.; also known to Robert Ashe, of Somerville, Mass., at the city of Boston, Mass., and to Albert Leavitt, of Boston, at Quincy, in said State, and to Edwin E. Bean, of and at Boston, in said State, and to J. Wesley Dodge, of and at Malden, and at Boston, in said State, and to Samuel N. Corthell, of and at Quincy, and at Boston, in said State, and to Charles F. Lollard, of and at Lynn, and also at Boston, in said State, and to Charles J. Addy, of and at Malden, and also at Boston, in said State, and also by many other persons whose names and residences and place where such knowledge and use were had are at present unknown to these
340 defendants, but which, when discovered, these defendants crave leave to insert herein and make a part of this answer.

7. That these defendants, upon information and belief, aver that the said Charles H. Helms was not the original and first inventor of the alleged improvements described and claimed in letters patent No. 173,284, but that the same or substantial and material parts thereof were patented or described in some printed publications more than two years prior to the application for said letters patent No. 173,284 by the said Helms, and particularly in the following-named letters patent of the United States, viz., to Benjamin J. Tayman, assignor, &c., for improvements in machine for trimming the soles of boots and shoes, No. 136,790, dated March 11, 1873, reissued

No. 9073, dated February 10, 1880; to Nathaniel S. Thompson for improvement in shoe-edge burnishing machine, No. 50856, dated November 7, 1865; to J. P. Molliere for improvement in polishing shoe soles, No. 13950, dated December 18, 1855; to L. Graf for improvement in heel and edge polishing machine for boots and shoes, No. 174,231, dated February 29, 1876; to Augustus C. Carey, assignor, &c., for improvement in sole-edge burnishing machines for boots and shoes, No. 129,457, dated July 16, 1872; also in the English letters patent to Julian Bernard, No. 2657, dated and granted November 11, 1856.

8. That these defendants, upon knowledge, information, and belief, aver that machines for burnishing the edges to soles of boots and shoes and for similar work, embodying among other the following devices: rotary and also reciprocating burnishers, burnishing tools formed with a projection or lip upon one or both sides of the burnishing or finishing face of the tool, elastic and adjustable tool-holders, both a fixed and an adjustable gauge or rest for either the face or the edge of the sole, gauges, and rests adapted to be adjusted in relation to the tool both vertically and horizontally, finger rests, fixed and adjustable, are each and all old and well known to the public, and were so known and open to public knowledge and use and were used long before the alleged invention of said Helms as set forth and described in letters patent 173,284 and relied on in complainant's said bill; and as exhibiting the said anticipa-
341 tions, and as showing the State of the art, and as embodying material and substantial parts of the alleged invention of said Helms the following letters patent of the United States are cited in answer, viz:

To A. C. Carey, number 147,551, dated February 17, 1874.
To T. K. Reed, number 116,867, dated July 11, 1871.
To D. McLaughlin, number 113,546, dated April 11, 1871.
To C. A. Smith, number 129,995, dated July 30, 1872.
To James H. Bassett, number 167,874, dated September 21, 1875.
To J. & J. Beasley, number 141,984, dated August 19, 1873.
To J. & J. Beasley, number 141,983, dated August 19, 1873.
To Charles J. Addy, number 135,745, dated February 11, 1873.
To Charles W. Glidden, number 143,899, dated October 21, 1873.
To Charles W. Glidden, number 143,690, dated October 14, 1873.
To Caroline Vrooman, adm'x, number 139,636, dated June 3, 1873.
To Charles J. Addy, number 151,819, dated June 9, 1874.
To Henry Grover, number 156,848, dated November 17, 1874.
To C. H. Helms, number 156,732, dated November 10, 1874.
To Leopold Graf, number 147,125, dated February 3, 1874.
To Leopold Graf, number 151,872, dated June 9, 1874.
To Gardner C. Hawkins, number 122,462, dated January 2, 1872.
To Gardner C. Hawkins, number 145,943, dated December 30, 1873.
To C. J. Addy, number 169,884, dated November 16, 1875.
To Richard C. Lambert, number 152,388, dated June 23, 1874.
To Richard C. Lambert, number 160,529, dated March 9, 1875.
To A. J. Wilbur, number 172,539, dated January 18, 1876.
To J. Bensley, number 135,259, dated January 28, 1873.

To A. C. Carey, number 147,552, dated February 17, 1874.
To B. Q. Budding, number 42555, dated May 3, 1864.
To J. H., J. M. & H. Q. Thompson, number 10239, dated November 15, 1853.
To Louis Coté, number 104,560, dated June 21, 1870.
To R. L. Burns, number 97758, dated December 14, 1869.
To E. T. Ingalls, number 28181, dated May 8, 1860.
To B. Q. Budding, number 39546, dated August 18, 1863.
To J. H. & J. M. & H. Q. Thompson, number 12877, dated May 15, 1855.
342 To C. H. Helms, number 31666, dated March 12, 1861.
To Gould & Hall, number 23245, dated March 15, 1859.
To Samuel W. Chamberlin, number 32859, dated July 3, 1861.
To B. Q. Budding, number 82798, dated October 6, 1868.
To V. R. Spear, number 72105, dated December 10, 1867.
To Hawkins, Mead & Spear, number 113,658, dated April 11, 1871.
To James H. Howard, number 123,566, dated February 13, 1872.
To James H. Howard, number 127,722, dated June 11, 1872.
To C. H. Helms, number 115,853, dated June 2, 1871.
To C. H. Helms, number 117,283, dated July 25, 1871.

Also in English letters patent as follows, viz:

To Julian Bernard, number 1999, dated September 2, 1859.
To Julian Bernard, number 890, dated October 18, 1854.
To C. H. Southall & R. Heap, number 2755, dated November 6, 1863.
To Keats & Clark (provisional), number 362, dated February 11, 1864.
To C. H. Southall and John Blakey, number 3048, dated November 21, 1870.

9. That these defendants, further answering, deny all and all manner of infringement upon any supposed rights of the complainant under letters patent No. 173,284, and deny that they contemplate or threaten any infringement, as by its said bill alleged; deny that they have made or received any gains or profits whatever for which the complainant may or can rightfully demand against them; deny that the complainant has been injured in any manner by any acts or supposed acts of these defendants; deny all unlawful acts charged, and aver that the complainant is not entitled to any injunction, damages, or account whatever or to any other relief in the premises, as prayed for in its said bill. Without this, that there is any other matter, cause, or thing in said complainant's said bill contained material or necessary for these defendants to make answer unto and not herein and hereby well and sufficiently answered, confessed, traversed, and avoided or denied is true to the knowledge and belief of these defendants, but by way of protestation
343 denying the same, and humbly pray to be hence dismissed with their reasonable costs and charges in this behalf most unjustly and wrongfully sustained.

BENJAMIN F. SPINNEY.
LEWIS P. BARTLETT, JR.

THOS. WM. CLARKE,
Solicitor and of Counsel.

UNITED STATES OF AMERICA, } ss:
District of Massachusetts, County of Essex, }

On this sixth day of September, A. D. 1882, before me personally appeared the above-named Benjamin F. Spinney, and on the sixth day of said September appeared said Lewis P. Bartlett, Jr., and each made oath that he has read the above answer subscribed by him and knows the contents thereof, and that the same is true of his own knowledge except as to matters which are therein stated to be on his information and belief, and as to those matters he believes them to be true.

IRA B. KEITH,
[SEAL.] *Notary Public.*

Replication. (*Filed, by Consent, September* 20, 1882.)

This repliant, saving and reserving unto itself all and all manner of advantage of exception to the manifold insufficiencies of said answer, for replication thereunto says that it will aver and prove its said bill to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the defendants is uncertain, untrue, and insufficient to be replied unto by this repliant; without this, that any other other matter or thing whatsoever in the answer contained material or effectual in the law to be replied unto, confessed and avoided, traversed or denied, is true; all which matters and things this repliant is and will be ready to aver, maintain,
344 and prove as this honorable court shall direct, and humbly prays as in and by its bill of complaint it has already prayed.

By J. E. MAYNADIER,
Its Solicitor.

COMPLAINANT'S EXHIBIT ASSIGNMENT. W. A. C., Sp'l Ex'r.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of an instrument of writing recorded in Liber M[21], page 227, and that said record has been carefully compared with the original and is a correct transcript thereof.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this
[SEAL.] twentieth day of October, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and seventh.

E. M. MARBLE,
Commissioner.

Know all men by these presents that I, Charles H. Helms, of Poughkeepsie, in the State of New York, in consideration of one

dollar to me in hand paid by the Union Edge Setter Company, a corporation duly established by the State of Connecticut, the receipt of which is hereby acknowledged, have sold, assigned, and transferred and do hereby sell, assign, and transfer unto the said The Union Edge Setter Company, its successors and assigns, all right, title, and interest in, to, and under letters patent of the United States numbered 173,284, granted to me February 8, 1876, for an improvement in sole-edge burnishing machines, and the invention described therein:

To have and to hold to said corporation, its successors and assigns, for and during the full term for which said letters patent are
345 granted as fully and entirely as I might have had and held the same had not this assignment been made.

In testimony whereof I have hereunto set my hand and affixed my seal this twenty-eighth day of February, 1877.

CHARLES H. HELMS. [SEAL.]

In presence of—
J. ARTHUR LOCKWOOD.

COMPLAINANT'S EXHIBIT CERTIFICATE. W. A. C., Sp'l Ex'r.

The Union Edge Setter Company.

The undersigned, being the president, treasurer, and a majority of the directors of the Union Edge Setter Company, a corporation organized under the statute laws of the State of Connecticut regulating the formation and organization of joint-stock corporations, and located at Hartford, in said State and in the county of Hartford, in pursuance of said statute laws, hereby certify as follows:

First. The purpose for which said corporation is formed is the following, viz: To manufacture, buy, sell, and use machines for burnishing the edges of boots and shoes, and other boot and shoe machinery, and the tools and appliances connected therewith; to own, hold, manage, and dispose of any patent rights affecting such machinery, tools, and appliances, or the use of same; to license others under such patents, and to lease such machinery or machines, tools, and appliances; to buy, sell, own, and dispose of any real or personal property necessary or convenient for the prosecution of said business, whether in the State of Connecticut or elsewhere, and generally to do all things necessary for said business or incident to its proper management.

Second. The amount of its capital stock is one hundred thousand dollars, divided into four thousand shares of twenty-five dollars each.

Third. The amount of its capital stock actually paid in is one hundred thousand dollars.

Fourth. Said capital stock is based upon and fully paid up by certain inventions and letters patent deemed essential for the
346 prosecution of the business of said company, and in payment for which said stock or certificates of shares therein are issued.

Fifth. The names and residences of its stockholders and the number of shares by each respectively owned are as follows:

George H. P. Flagg, Boston, Mass., 1,200 shares; Dean Peabody, Lynn, Mass., 1,000 shares; George F. Breed, New York city, 1,000 shares; Thomas Fearey & Sons, Albany, N. Y., 800 shares. Total, 4,000 shares.

And in further pursuance of said statute laws we, the undersigned, cause this certificate to be deposited with the secretary of the State of Connecticut, and a duplicate thereof with the town clerk of said Hartford.

Dated at Boston aforesaid this March 15, A. D. 1877.

G. H. P. FLAGG, *President.*
DEAN PEABODY, *Treasurer.*

G. H. P. FLAGG,
DEAN PEABODY,
Directors.

COMMONWEALTH OF MASSACHUSETTS, *Suffolk,* } ss:

MARCH 15, A. D. 1877.

Then personally appeared the above-named George H. P. Flagg and Dean Peabody and severally made oath that the foregoing certificate, by them severally signed in their official capacities as aforesaid, is true.

Before me— AMBROSE EASTMAN,
[SEAL.] *Notary Public.*

Received and filed March 17, 1877.

STATE OF CONNECTICUT, *Office of Secretary of State,* } ss:

I, Charles E. Searle, secretary of the said State of Connecticut and keeper of the seal thereof, and of the original record of the certificate of the organization of the Union Edge Setter Company,
347 of which a copy is hereto annexed, do hereby certify that I have compared the annexed copy of the said certificate with the original record thereof now remaining in this office and have found the said copy to be a correct transcript thereof and of the whole of the said original; and I further certify that the said original record is a public record of the said State of Connecticut and does not appertain to a court; that the original certificate was deposited in this office on the seventeenth day of March, 1877, and recorded in a book kept for that purpose.

In testimony whereof I have hereunto set my hand and affixed the seal of said State, at Hartford, this eleventh day of October, 1882.

[SEAL.] CHARLES E. SEARLE,
Secretary of State.

348 *Evidence for Complainant.*

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, William A. Copeland, special examiner.

BOSTON, *October* 13, 1882.

Present: James E. Maynadier, Esq., of counsel for complainant; Thos. Wm. Clarke, Esq., of counsel for defendants.

Deposition of Charles F. Brown.

Direct examination by JAMES E. MAYNADIER, Esq., of counsel for complainant:

Int. 1. What is your name, age, residence, and occupation?

Ans. Charles F. Brown; thirty-four; Reading, Mass.; solicitor of patents.

Int. 2. How long have you been a solicitor of patents, and what particular experience have you had, if any, as to patents for machinery for burnishing the heels and edges of soles of boots and shoes?

Ans. I have been solicitor of patents about thirteen years, and during the last eight years have frequently been employed in obtaining patents for such machines.

Int. 3. What examination, if any, have you recently made as to the state of this art and as to the practical operation of sole-edge burnishing machines?

Ans. I have examined a number of patents which I understand to be the references given by the defendants in this case; also the machines like these two in the room.

(The machines referred to are now put in evidence and marked "Complainant's Exhibit Complainant's Machine, W. A. C.,
349 sp'l ex'r," and "Complainant's Exhibit Defendants' Machine, W. A. C., sp'l ex'r.")

(Defendants' counsel admits that defendants have used, since the date of the Helms patent in suit and before the filing of the bill, in the business of burnishing and setting the edges of boot and shoe soles, machines substantially like the machine here produced and marked in this case "Exhibit Defendants' Machine.")

(Complainant's counsel here puts in evidence a copy of letters patent of the United States granted to Charles H. Helms, dated February 8, 1876, and numbered 173,284, marked "Exhibit Complainant's Patent, W. A. C., sp'l ex'r;" also a certified copy of assignment under said patent No. 173,284, and marked "Complainant's Exhibit Assignment, W. A. C., sp'l ex'r;" also a certificate of incorporation, marked "Complainant's Exhibit Certificate, W. A. C., sp'l ex'r.")

Int. 4. Are you familiar with the letters patent now shown you, "Exhibit Complainant's Patent," and do you understand the construction and mode of operation of the machine shown in that patent, and the functions of its several parts?

Ans. I am familiar with the patent and understand the construction and operation of the machine and the functions of its several parts.

Int. 5. What, in your opinion, is the main feature of value and importance in that machine?

(Objected to, as no foundation is laid for this inquiry, and immaterial.)

Ans. In my opinion, the finger rest used in connection with the reciprocating tool, which tool has upon it the rest for the face of the sole, is one of the most important features of the machine.

Int. 6. Please compare "Exhibit Defendants' Machine" with the machine described in complainant's patent, and state whether they are substantially the same or not, in your opinion, giving your reasons.

Ans. In my opinion, they are substantially the same, because the defendants' machine has a reciprocating burnishing tool provided with a rest for the face of the sole, and a device below the
350 tool which is a full equivalent of the finger rest shown in complainant's patent, and operates in the same way as an aid to the operator in burnishing the toe portion of the sole edge.

Int. 7. Please explain more fully, by reference, for instance, to the drawings of the patent or the machines, what the part is that you call the rest for the face of the sole, how it operates, and what work it does.

Ans. The rest for the face of the sole is the longer lip projecting downwardly from the rear portion of the tool marked C in the drawing of the complainant's patent, and formed integral with said tool. The office of this rest is to prevent the sole edge from slipping laterally off from the burnishing surface, and to burnish or solidify a portion of the face of the sole at the margin of said face; in other words, the rest co-operates with the sole-edge burnishing surface in forming a firm and solid corner where the sole edge meets the face of the sole and prevents the formation of a burr at said corner.

Int. 8. What differences, if any, can you discover between the construction and office of and the work done by the two longer lips on the complainant's and defendants' machines, considering both, of course, as co-operating with the finger rest and with that part of the tool that burnishes the edge of the sole?

Ans. I can see no essential difference.

Int. 9. I observe that in both machines the burnishing tools, including the longer lips which you have called rests, are capable of a slight swivelling motion. What is this for? and state whether this is a matter of importance or a mere preference, in your opinion.

(Objected to as incompetent and immaterial.)

Ans. This swivelling motion is for the purpose of enabling the tool and rest to follow the undulations or upward and downward curvatures of the sole edge, and is, in my opinion, a very important feature. The curvatures that I refer to are those which have upward

and downward directions when the sole is resting in its natural position on a horizontal surface.

Int. 10. So far as you know or are informed by investigation, what other way, if any, is there for presenting the edge of a
351 sole to a rapidly reciprocating burnishing tool, except by means of a finger rest and a rest for the face of the sole?

Ans. I know of no successful way.

Cross-examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Cross-int. 11. Has the rest for the face of the sole referred to in the complainant's patent any specific lettering in that patent?

Ans. It has not.

Cross-int. 12. Is this rest for the face of the sole a stationary rest or a movable rest?

Ans. A movable rest.

Cross-int. 13. It is a part of the burnishing tool, is it not?

Ans. It is formed in the same piece with the burnishing tool.

Cross-int. 14. When the burnishing tool is heated it also partakes of the temperature, does it not?

Ans. It does.

Cross-int. 15. If the face of the sole is pressed against it, properly prepared for burnishing the face of the sole which it encounters, this longer lip projecting downward from the rear portion of the tool marked C is burnished, is it not?

Ans. If sufficient pressure is employed by the operator it is.

Cross-int. 16. Have you ever seen burnishing and edge-setting machines in operation?

Ans. I have.

Cross-int. 17. It is not customary, is it, to bring the face of the sole in contact with the outer portion of the finger rest?

Ans. I believe it is not.

Cross-int. 18. Are you familiar with the business and with the tools employed in the business of edge-setting by hand?

Ans. I have never seen the operation, but have a general understanding of it and of the tools employed.

Cross-int. 19. Whether or not, as you understand it, the hand burnishing tools have usually been made with a flange or lip on the side corresponding to the face of the sole?

Ans. I understand that they have.

352 Cross-int. 20. And the object of this lip is, among other things, to consolidate the lower corner of the sole, is it not?

Ans. I think so.

Cross-int. 21. So that a burnishing tool without such a lip, whether to be employed by hand or in a machine, would not do good work, would it?

Ans. It would not.

Cross-int. 22. Will you point out that part of the complainant's patent in which the longer lip of the tool C is stated to be the rest for the face of the sole?

Ans. I find no specific statement to that effect.

Cross-int. 23. If, as you have said, the office of this rest is to burnish or solidify a portion of the face of the sole at the margin of said face, will you point out where the oscillating or reciprocating burnishing part of the longer lip ends, and where the oscillating. reciprocating resting part of said lip begins?

Ans. I consider both parts to be identical, the burnishing function being incidental to the construction and operation of the lip.

Cross-int. 24. I read you from the complainant's patent: "My machine is extremely simple, and consists of a head or standard carrying a tool-holder holding a tool for setting or burnishing the edges of the soles of boots and shoes, and a finger rest to aid the workman in holding the edge up to the tool, and the face of the sole against the rest, which is just below the burnishing part of the tool," and I wish you to point out to me a stationary rest in the machine which is below the burnishing part of the tool, if there be any.

Ans. I see no stationary rest.

Cross-int. 25. Excluding from consideration all the parts integral with the tool C of complainant's patent, what surface is there projecting below the tool C other than the longer lip of tool C?

Ans. There is none.

Cross-int. 26. Has not the finger rest D of the complainant's patent a surface?

Ans. It has.

Cross-int. 27. Does not the finger rest D extend below the lowest part of the longer lip of the tool C?

353 Ans. It projects below the horizontal plane of the lower edge of that lip.

Cross-int. 28. You have said that you have examined a number of patents which you understand to be the references given by the defendants in this case; did you, in the course of that examination, examine the Tayman patent of March 11, 1873, No. 136,790, and the Molliere patent of December 18, 1845, No. 13950?

Ans. I did.

Direct examination resumed:

Int. 29. Please refer to your 17th cross-interrogatory and answer, both of which I think are ambiguous—the ambiguity being mainly in the question—and explain your answer more fully.

Ans. It is not customary to bring the face of the sole in contact with the outer portion of the finger rest in the complainant's machine. In the defendant's machine the disc, which is used as a finger rest, is capable of an outward and inward motion which enables the face of the sole to be brought in contact with the outer portion of said disc if the operator desires it.

Int. 30. Please refer to your 22d cross-interrogatory and answer, and state what other part than the longer lip of the tool C can be the rest for the face of the sole, so far as you are able to understand the language used in the specification; or, in other words, is there any hint, or even any bare suggestion, in the patent that this rest is anything else but the longer lip of the tool C; and, if so, what language seems to you to contain such hint or suggestion?

(Objected to as incompetent.)

Ans. I find no suggestion or hint in the patent that leads me to believe that anything else was intended as the rest for the face of the sole excepting the lip on the tool.

Int. 31. I infer, from some of the questions put by the defendant's counsel, that he supposes that the front face of the finger rest in complainant's machine is the rest for the face of the sole. Please state what the essential office of the rest for the face of the sole is, and what motion it may have and what it must not have with relation to the path of the reciprocating burnisher.

354 Ans. The most essential office of the rest for the face of the sole appears to me to be to guide the tool or cause it to swivel or turn to conform to the upward and downward curvatures of the sole edge. It may move in the same direction as the burnishing tool, but must not move in the direction which is lateral to the direction in which the tool moves.

Int. 32. What is it in both defendants' and complainant's machines which prevents the face of the sole from getting so near the standard of the machine as to be out of the proper relation to the burnishing tool?

Ans. It is the rest for the face of the sole, as I said in answer to interrogatory 7.

Int. 33. Can you see anything in complainant's patent, or either of the two machimes, which will perform the office referred to in the preceding question other than the longer lip of the burnishing tool; if so, what is it?

Ans. I cannot.

Cross-examination resumed:

Cross-int. 34. Have you ever seen the defendant's machine in operation?

Ans. I have.

Cross-int. 35. Where?

Ans. At the factory of B. F. Spinney & Co., at Lynn.

Cross-int. 36. And do you mean to be understood that when you saw it in operation the face of the sole was held in contact with the disc which is used as a finger rest?

Ans. I think it was not.

Cross-int. 37. When you used the words "rest for the face of the sole," in answer to interrogatory 31 and interrogatory 32, you mean always the longer lip projecting downward from the burnishing tool, do you not?

Ans. I do.

Cross-int. 38. In using the machine complainant's machine or the machine like defendants' machine, have you noticed whether

355 the operator bears the shoe against the longer or shorter lip which projects downward on the burnishing tool?

Ans. In all the operations of either machine that I have witnessed the operator bears lightly against the longer lip.

Cross-int. 39. Doesn't the office of the rest for the face of the sole

in the complainant's patent depend somewhat upon the part which the court shall finally consider to be the rest for the face of the sole, as to whether it be the outer surface of the finger rest or the longer lip on the burnishing tool, or would the office of the rest for the face of the sole, as described by you, be the same, whichever of those things the court shall decide was the rest for the face of the sole?

Ans. I think not.

Cross-int. 40. Now, please read me from the complainant's patent the language from which you are pleased to infer the essential office of the rest for the face of the sole set forth in answer to interrogatory 31.

Ans. The only language that refers to that function is this: "The tool may be in one piece, with a tang which fits the holder, or may be secured in a proper socket at the lower part of this tang. In practice the latter mode is used, as shown in Figs. 3 and 4."

Cross-int. 41. Suppose the longer lip on the tool were cut away so as to have no downwardly projecting lip on the back part of the burnishing tool, would a machine carrying such a reciprocating part be capable of burnishing the edge of the sole of a shoe?

Ans. It would, imperfectly.

Cross-int. 42. Suppose that a machine having a tool with two lips like that in defendants' machine had no finger rest, would the long lip perform any other office than that you have described in answer to interrogatory 31; and if so, what?

Ans. It would still prevent the sole from slipping off from the burnishing surface of the tool in a lateral direction, and also solidify the corner of the sole, as I stated in a former answer.

Direct examination resumed:

Int. 43. In the 39th interrogatory defendants' counsel seems
356 to think that there is some doubt whether the rest for the face of the sole is the longer lip of the burnisher or the front face of the finger rest. Have you any doubt about this? And quote such portions of the specification as makes it clear to your mind what the rest for the face of the sole is, in fact.

Ans. I have no doubt. The following extracts from the specification, in connection with the drawing, make it clear to my mind that the longer lip on the tool is the rest for the face of the sole: "And a finger rest to aid the workman in holding the edge up to the tool and the face of the sole against the rest, which is just below the burnishing part of the tool. * * * The workman presses the edge up against the tool and the face of the sole against the surface which projects below the tool, and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger rest D, especially when burnishing the corners of the toes. * * * The combination of the finger rest D with the burnishing tool and the rest for the face of the sole is the main feature of my invention. * * * In combination with the burnishing

tool and the rest for the face of the sole, the finger rest D, substantially as described."

CHARLES F. BROWN.

Attest: WM. A. COPELAND,
Special Examiner.

BOSTON, *October* 13, 1882.

Deposition of Frederick W. Coy.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 1. What is your name, age, residence, and occupation?

Ans. Frederick W. Coy; forty-one; Boston; mechanical draughtsman.

Int. 2. What experience have you had as a machinist, more especially in connection with machines for the manufacture of boots and shoes?

Ans. I have been employed on different kinds of machines
357 for the construction of boots and shoes, more especially of trimming and edge-setting. I have had an experience of twelve years.

Int. 3. What connection have you had, if any, with the manufacture of machines for the Union Edge Setter Company like this one, "Exhibit Complainant's Machine?"

Ans. I made the drawings for the head of the machine as now constructed, and the patterns for the same, and am now superintendent of the shop in which they are built.

Int. 4. Can you tell whether this machine, "Exhibit Complainant's Machine No. 656," was made in your shop or not?

Ans. I couldn't state positively whether that particular machine was made there or not. Judging from the number, I should think it was.

Int. 5. Have you familiarized yourself with the state of the art of setting or burnishing sole edges? If so, state generally what you have done to that end.

Ans. I have made myself familiar with the state of the art by the study of this and other machines for the purpose with different forms of construction.

Int. 6. What have you done in relation to patents issued in this country and abroad on sole-edge machines?

Ans. I have studied them closely and compared the different kinds, whether rotary or reciprocating, for the purpose of determining which are the best adapted to the present wants for edge-setting.

Int. 7. How does the Union Edge Setter Company's machine, "Exhibit Complainant's Machine," compare with any other you know for edge-setting, as to amount and quality of work and in all other respects which fit a machine for practical use?

Ans. I consider it the best, so far as quantity and quality is con-

cerned. I consider the machine more durable and as easily operated as any other in the market, of that class.

Int. 8. Prior to the invention described in "Exhibit Complainant's Patent" how were shoes presented to reciprocating burnishing tools, so far as your own knowledge and information from the study of patents extend?

358 Ans. They were presented on what is called a jack, principally operated by a mechanism to produce the proper movement of the shoe to the burnishing tool.

Int. 9. What amount of success did that class of machines, namely, those in which a jack and a reciprocating burnishing tool formed essential parts of the machine, meet with in the burnishing the edges of heels, and also in burnishing the edges of soles?

Ans. In burnishing the edges of heels they met with success in some instances, but in burnishing the edges of soles the plan was a failure.

Int. 10. How were the sole edges generally burnished in this country before the introduction of the Union edge-setter?

Ans. They were generally burnished by hand, with the exception, maybe, of some of the cheap work that may have been done on the rotary machines.

Int. 11. Can you explain the difference between the burnishing done by a rotating burnishing tool and that done by a tool reciprocated by hand or by power? Please state also on what classes of work the two kinds of burnishing are mainly used.

Ans. The burnishing done by a rotating burnisher is of an inferior quality to that done by a reciprocating burnisher, from the fact that the fibres of the leather are laid in one direction, while that done by reciprocating burnisher, the action of which removes the fibre of the leather, —. As a consequence the edge would not become rough from the action of the atmosphere, I suppose, when the moisture gets into it. As a consequence the rotary burnisher is used on a cheap class of work, in making what is called a waxed edge, while the reciprocating movement is used on a better class of work, with an ink or blacking to form the polished surface of the edge.

Int. 12. Are you familiar with the letters patent, a copy of which is now shown you, marked "Exhibit Complainant's Patent?"

Ans. I am.

Int. 13. What are the main features of value and practical importance in the machine described in that patent, and why?

Ans. The reciprocating movement of the burnisher, the rest

359 for the face of the sole, and the finger rest. The reason why the reciprocating movement is an important feature is because in its action it removes the fibres from the edge of the sole. The important feature of the rest for the face of the sole is that it produces a firm corner to the sole, solidifies the sole, and acts as a guard to keep the edge of the sole in its place on the burnisher. The important feature of the finger rest is to aid the workman in keeping the work in its proper place upon the burnisher and to resist the reciprocating movement of the burnisher as it is brought in contact with the shoe.

Int. 14. Have you any knowledge of any machine for setting edges of any commercial value which lacks either one of these three features?

Ans. I have not.

Int. 15. State briefly the history of the art, as you understand it, up to the invention described in complainant's patent.

Ans. In the reciprocating burnishers I find nothing of practical value, from the fact that they generally jack the shoe, and in that way it is impossible to get a proper bearing upon the edge of the sole with a burnishing iron; and the same may be said of the rotary burnishers.

(Adjourned.)

BOSTON, *October* 14, 1882.

Other attempts were made to burnish the edges of the soles of boots and shoes with rotary burnishing irons, without the use of a jack, by presenting the shoe by hand, and this met with some success, so far as keeping the edge of the shoe in contact with the burnisher was concerned, but was not considered of value in the better classes of work, for the reason, as before stated, that the fibres of the leather would be laid down in one direction, while others understanding the practicability of presenting the sole by hand to a revolving burnisher, and also understanding the difficulty of obtaining a good edge in that way, made attempts to construct a burnishing machine that would have the advantages of a rotary burnisher, so far as presenting the shoe by hand was concerned, but also the advantages of a reciprocating movement of the burnisher, so far as excellence of the work was concerned.

360 Int. 16. So far as you have any knowledge or information, was any practical way known before the Helms invention of presenting the sole edge to a reciprocating burnishing tool?

Ans. There was not.

Int. 17. Is this machine, "Exhibit Defendants' Machine," substantially the same as or substantially different from the machine described in the complainant's patent, in your opinion? And give your reasons for the opinion you may express.

Ans. In my opinion, it is substantially the same as the one described in the complainant's patent, for the reason that it has a reciprocating burnisher, a rest for the face of the sole, and a finger rest to aid the workman in presenting the edge and face of the sole properly against the burnisher and rest.

Cross-examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Cross-int. 18. When did you make the drawings for the head of the Union edge-setter machine as now constructed, and patterns for the same?

Ans. As near as I can remember, about four years ago.

Cross-int. 19. Does this number 656 represent the whole number of Union edge-setter machines, or only the number of construction like "Complainant's Exhibit Complainant's Machine"?

Ans. I believe it to represent the whole number of machines of the Union Edge Setter Company's make, for the purpose of burnishing the edges of boots and shoes, up to the time that one was made.

Cross-int. 20. Do you remember at or about what number the present type of the machine was first marked?

Ans. I don't know exactly, but I should think between two hundred and fifty and three hundred.

Cross-int. 21. The machines of the Union Edge Setter Company before that time had the horizontally vibrating slide F of the complainant's patent working inways, instead of the horizontal radial arm construction of the exhibit, did they not?

Ans. They had the reciprocating slide F and the tool-
361 holder B, as shown in the drawing of the patent, whose functions were the same as the horizontal vibrating arm in the exhibit.

Cross-int. 22. Did you make the construction drawings of the patterns of the earlier type of the machines like the one described in the patent?

Ans. I did not.

Cross-int. 23. You have stated in answer to interrogatory 8 that shoes were presented to burnishing tools on a jack before the date of the complainant's patent. Have you not found among the researches that you testify in answer to interrogatories 5 and 6 any instance of a machine, either in use or described in a patent, in which the edge of the shoe sole was brought up to the edge of the burnishing tool by hand?

Ans. They have been so presented principally (referring to answer to Int. 8), and there are others that have been presented by hand.

Cross-int. 24. Please look at the drawings of the complainant's patent and say whether or not the line forming the exterior surface of the longer lip of the tool C, if extended, will not touch or nearly touch the front surface of the hook D, as shown in the drawing.

Ans. By the proportion of this drawing I should say it might touch or nearly touch such surface.

Cross-int. 25. When a shoe is presented to a machine for edge-setting or burnishing, is it upon a last usually?

Ans. If the shoe is jacked, it is certainly on a last or form of a jack, which would be its equivalent for that purpose. When presented by hand there is no last or form used, as a necessity.

Cross-int. 26. At what stage of the manufacture of the shoe is edge-setting done—near the close?

Ans. It comes next, I think, after the trimming and before finishing the bottom.

Cross-int. 27. And after the bottom is finished the upper receives its finish, doesn't it?

Ans. Where such finish is necessary.

Cross-int. 28. Are there not very many shapes to the lower edge of burnishing tools in use?

362 Ans. There are different shapes; there are many sizes, but not a great variety of shapes.

Cross-int. 29. I notice that each of the machines here present have two tools on them which differ in shape, one of them being a tool which has a short lip on the front side and a longer lip on the back side, running almost with a regular curve to the bottom of the short lip. In that tool whereabouts is the rest for the face of the sole situated?

Ans. In that case I should think the rest for the face of the sole would be that part of the tool which comes in contact with the face of the sole.

Cross-int. 30. Does any part of that tool come in contact with the face of the sole which it does not burnish?

Ans. The part of the tool that comes in contact with the face of the sole will burnish that part of the sole if it had been previously prepared for that purpose, but cannot, I think, do so in the sense in which the edge is burnished unless it has been so prepared before the operation of burnishing takes place.

Cross-int. 31. When a shoe is prepared for edge-setting or burnishing, is not the lower surface of the sole usually somewhat convex?

Ans. It is.

Cross-int. 32. If the hook forming the rest in "Complainant's Exhibit Complainant's Machine" projected toward the tool a quarter or three-eighths of an inch farther than it does, would not the lower surface of the tool touch it in edge-burnishing?

Ans. That would depend entirely upon the curve of the sole in relation to the bevel of the edge of the sole.

Cross-int. 33. Do you make your own edge-setting irons; and, if not, by whom are they made?

Ans. We make what we term the blanks, leaving the iron, which is of sufficient size to form the burnishing surface, left blank or plain, which are cut by other parties. I think the man's name is Dunham who does such cutting.

Cross-int. 34. I show you a circular purporting to carry a representation of thirty different sections of edge-burnishing tools,
363 and ask you if you are acquainted with burnishing tools for use on the Union edge-setter similar to any of these, and which, in outline?

Ans. I think that circular represents generally the style of iron used on the Union edge-setter. The most common, I think, in use would be Nos. 1, 2, 3, 4, 9, 27, and 30.

(Defendants' counsel here puts in evidence the circular referred to, marked "Defendants' Exhibit Snell Circular, W. A. C., sp'l ex'r.")

Cross-int. 35. The shorter lip on the tool runs on the upper surface of the sole, does it not?

Ans. According to the natural position of the shoe, it does.

Cross-int. 36. Is the upper surface of the sole usually prepared for burnishing in the place where that lip runs?

Ans. It is.

Cross-int. 37. How does the operator get sufficient pressure upon that part of the sole to enable the lip to burnish?

Ans. The nature of the leather is such, and the size and form of the lip and tool is such, that a gentle pressure is all that is necessary to accomplish such purpose, and this pressure is got mainly by upward pressure against the lower inclined lip on the back part of the tool. It would not, I think, be practical to burnish that surface by drawing the shoe against the guard in the operation of burnishing.

Cross-int. 38. Have you ever yourself run one of these edge-setting machines?

Ans. Not to any extent.

FRED'K W. COY.

Attest: WM. A. COPELAND,
Special Examiner.

BOSTON, *October* 14, 1882.

Deposition of Dean Peabody.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 1. What is your name, age, residence, and occupation?

Ans. Dean Peabody; fifty-eight; Lynn; lawyer.

Int 2. What experience have you had in connection with
364 machines for burnishing the edges of soles and the heels of boots and shoes?

Ans. Well, my first connection with the matter was with Mr. Vivian K. Spear and Benjamin F. Larabee, of Lynn. About the year 1867 or 1868 Mr. Spear was attempting to construct a machine for burnishing the heels of boots and shoes as an inventor, and Mr. Larabee was furnishing him money for the work of experimenting. I had rendered them some service in a professional way, running over a period of a year or two, when they proposed, as payment for the services thus far rendered and to be rendered in the future in that particular matter, to assign me an interest in their patents and machines, of which I accepted. The result of this labor of Mr. Spear and others co-operating with him was a production of what has subsequently developed into the Tapley heel-burnisher of the present day. After that I furnished more or less money to enable Mr. A. C. Carey to construct a machine for burnishing the fore-part edges of boots and shoes. After constructing several machines I became associated with what is now the Union Edge Setter Company, and am at the present time a stockholder in that corporation and one of its officers, and have been from the beginning.

Int. 3. How is the shoe held in heel-burnishing by machinery?

Ans. Held by or upon a jack.

Int. 4. State whether it is practical or not to hold the shoe upon a jack in burnishing the edge of the sole as distinguished from the heel, and state also how you know about this.

Ans. So far as my observation has gone, and in connection with the various inventions that I have been interested in and observed, I should say it was not.

Int. 5. What was the earliest patent for burnishing sole edges that

you were interested in? Please give its number and date and state whether the shoe was jacked or not.

Ans. It was the Ingalls patent, dated May 8, 1860, No. 28181. This patent was assigned to Larabee and Spear about the time that I became interested with them. This machine used a jack.

Int. 6. State what degree of success this machine met with as a sole-edge burnisher, and also what principle in it has turned
365 out to be of great practical value and importance in the burnishing of sole edges.

Ans. I think as a machine for burnishing sole edges it was not a success. It was a failure in that. The swivelling of the tool has turned out to be—well, an absolute necessity, perhaps—a great success.

Int. 7. What, if anything, had your ownership of the Ingalls patent to do with your connection with the complainant's machine?

Ans. Mr. George F. Breed and myself in the fall of 1875 were the owners of the extended Ingalls letters patent, so far as it related to fore-part burnishing of sole edges, and my first knowledge that the Ingalls patent was of any importance to any one was receiving a letter from Mr. Maynadier. Upon the receipt of that letter I came to Mr. Maynadier's office, and was there informed that a Mr. Helms had a machine for edge-burnishing which in some respects, in his judgment, infringed upon the Ingalls patent, and we were invited to go with him and Dr. Flagg to Mr. James Molloy's machine shop and see the machine. The result of this and other interviews was the formation of what is now the Union Edge Setter Company, and the conveyance to that company of the patents owned by the several parties.

Int. 8. What was the earliest machine for setting sole edges in which you were interested? And state whether that contained a jack or not, and, if patented, give the number and date of the patent.

Ans. It was got up by Augustus C. Carey, dated July 16, 1872, and numbered 129,457. There was no jack to that.

Int. 9. State briefly the history of this machine—that is, how you became interested in it, what was done about it, and the result of the enterprise.

Ans. About this time, the date of the patent, 1872—shortly before that—Mr. A. C. Carey, who was an inventor of various machines, induced me to furnish some money for the purpose of constructing a machine for burnishing sole edges of boots and shoes, with a reciprocating or rotary tool instead of the revolving wheel, as the Hodges machine, as it was then called, that used
366 the wheel, was not satisfactory to shoe manufacturers generally. I think the first machine that Mr. Carey constructed was the one described in the patent the date of which I have given above. This machine, I think, never was used; only one was ever constructed, to my knowledge.

Int. 10. What became of that machine?

Ans. I think it was sold for old junk with some other machines.

Int. 11. Did you afterwards have anything to do with the manu-

facture of any other machine for burnishing sole edges; if so, what sort of a machine? and give the number and date of the patent for it, if it was patented.

Ans. I did. It was a machine with a jack and reciprocating burnisher, patented by A. C. Carey February 17, 1874, No. 147,551 and No. 147,552.

Int. 12. How many machines of this kind were made, and what was the result of the enterprise?

Ans. My recollection is that some six or eight machines were made, and the enterprise was a failure.

Int. 13. Do you recollect what the principal trouble was with the machines?

Ans. One trouble was that the operator couldn't do any more on the machine than he could do by hand. It was very hard work to run the machine.

Int. 14. How were the edges of shoe soles burnished generally when you became interested in the Union Edge Setter Company?

Ans. Almost entirely by hand. At that time some cheap grades of shoes were burnished on the Hodges machines, a few of which were in use at that time, and the Dodge—both rotary machines.

Int. 15. What success has the Union Edge Setter Company's machine had? and in the course of your answer introduce some of their circulars, explaining what they mean.

Ans. The machine has been very successful. At the commencement of the second year we issued a circular which is dated January 1, 1877. At that time we had over seventy machines. In 1880 we issued another circular, from which it appears that we had
367 about five hundred machines, and at the present time we have about six hundred and seventy-five, as appears from our latest circular.

(The three circulars referred to are now produced and marked respectively "Exhibit Circular 1, W. A. C., sp'l ex'r," "Exhibit Circular 2, W. A. C., sp'l ex'r," and "Exhibit Circular 3, W. A. C., sp'l ex'r.")

Int. 16. What do you believe to be the main features of value and importance in the complainant's machine?

Ans. The finger rest, the rest for the sole of the shoe, the reciprocating tool.

Int. 17. Are you familiar with the complainant's patent?

Ans. I think so. I have examined it with some care.

Int. 18. What is your opinion as to the substantial identity or difference of the defendant's machine with the machine described in the complainant's patent?

Ans. I suppose that the essential features of the complainant's machine are very much like those of the defendants.

Int. 19. The cuts on "Exhibit Circular 1 and Circular 2" seem to differ. Do you recollect when you changed the style of the machine? and state also whether you ever made any machines which did not contain the combination of the finger rest and the rest for the face of the sole with the burnishing tool.

Ans. I think we changed the form of the head either the latter part of the year 1879 or some time during the year 1880. We never made any machines that did not contain the finger rest, the rest for the face of the sole, and the reciprocating burnisher.

Int. 20. So far as you can judge from your observation and experience, what would be the practical value of your machines if either of these elements were omitted and no equivalent device were substituted?

Ans. The machine would be worthless for the purpose for which it is now designed.

Int. 21. How does the commercial success of your company compare with that of any other like enterprise known to you?

Ans. Very favorably. We have paid our monthly dividends of one per cent. on our stock for more than four years. The
368 total dividends amount to sixty per cent. on the par of the stock. The last annual report showed a surplus of about nineteen thousand dollars cash assets.

Int. 22. What trouble, if any, have you had from infringers before the defendant's machines began to be introduced?

Ans. There have been two machines that were put upon the market, but there were very few sold, I think; the first about three years ago, called the Universal edge-setter. So far as I know, it has been entirely abandoned. There were several put out on trial, but I think none were sold. It was abandoned as a failure. The second, I can't give the name of it, but it was put upon the market in the summer of 1881. A Mr. Hutchinson, of Lynn, was, I think, the patentee. So far as I know, that has been abandoned as a failure.

Int. 23. Has it been necessary to bring any suits prior to this one for infringement of your patents?

Ans. It has not.

Cross-examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Cross-int. 24. There were several Ingalls machines practically operated, were there not?

Ans. I have been so informed, and I have no doubt of it.

Cross-int. 25. The swivelling tool of the Ingalls machine had upon it a deep lip or flange, along which the edge of the sole passed in the operation of the machine, did it not?

Ans. I can answer only from the patent. I never saw one of the machines. It would appear so from the patent.

Cross-int. 26. The tool of the Ingalls patent was a reciprocating tool, was it not?

Ans. It was.

Cross-int. 27. What was the Hodges machine? Where was that used?

Ans. The Hodges machine had the revolving burnisher, and was used mainly, I should say, in Lynn.

Cross-int. 28. Did the Hodges machine have a jack?

Ans. It did.

369 Cross-int. 29. Did the Dodge machine employ a jack?

Ans. It did.

Cross-int. 30. Where was the Dodge machine principally used?

Ans. I should say more of them in New England than out.

Cross-int. 31. Have you any information as to how many of the Dodge machines were in use?

Ans. I don't know as I can say that I have any information that would be accurate, but I have an impression that there were about three hundred in all.

Cross-int. 32. Those machines are still upon the market, are they not, and still in use?

Ans. They are.

Cross-int. 33. Your company occasionally trades for and afterwards sells a Dodge machine, does it not?

Ans. We do.

Cross-int. 34. The burnishing wheel on the Dodge machine has a flange which in operation descends along the face of the sole, does it not?

Ans. I think so. I never looked at it to see.

Cross-int. 35. Who manufactured the Dodge machine, if you know?

Ans. C. S. Fifield & Co.

Cross-int. 36. In edge-setting by hand the tool is reciprocated, is it not?

Ans. It is.

DEAN PEABODY.

Attest: WM. A. COPELAND,
Special Examiner.

Present: Counsel as before.

BOSTON, *October* 18, 1882.

Deposition of William Gordon.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 1. What is your name, age, residence, and occupation?

Ans. William Gordon; thirty-seven; Boston; shoemaker.

370 Int. 2. What is your connection with the Union Edge Setter Company, and how long have you been with that company?

Ans. My connection with the Union Edge Setter Company is as an agent; ever since the beginning.

Int. 3. What experience had you had as to sole edges before your connection with the Union Edge Setter Company?

Ans. Five years; mostly with Warren Howard, of Brockton, setting both heel and sole edges; also with the Helms Heel-Burnishing Company, on heel edges.

Int. 4. Please explain what your duties have mainly been for the Union Edge Setter Company.

Ans. My duties have mainly been to sell the machines, set them up, instruct operators, cut irons for the machines, collect bills, &c.

Int. 5. Please explain how the operator holds and presents the shoe to the Union edge-setter, the "Exhibit Complainant's Machine."

Ans. He stands in front of the machine, holds the shoe with both hands while burnishing the fore part or side of the shoe, and gets the pressure with the muscles of his leg or body and arms, changes the position of the shoe, the heel into the right or left hand as he may be best accustomed to, takes hold of the toe with the other hand, takes hold of the finger rest with the forefinger—three fingers resting on the face of the sole steadies the toe to the burnishing tool—swings the shoe with his lower hand, and keeps the shoe in position to the tool with the upper hand.

Int. 6. About how long, on the average, does it take a man to become a fair operator on the "Exhibit Complainant's Machine?"

Ans. From one to three weeks.

Int. 7. About how long, on the average, is the presence and aid of a teacher required on complainant's machine?

Ans. From five hours to two days.

Int. 8. After a man has learned to operate the complainant's machine, how does that help him, if at all, in operating the defendants' machine?

Ans. It helps him in every way. He can operate the one just as well as he can the other.

371 Int. 9. How were sole edges burnished generally when complainant's machine was first put on the market, in 1875?

Ans. Burnished by hand altogether or by the Dodge rotary and a few Hodges.

Int. 10. Explain the difference between the work done by a machine using a rotary burnishing tool and the work done by hand or that done by complainant's or defendants' machine.

Ans. The work done on a rotary machine lays the fibres all one way, and when the water dries out of the edge the fibres rise up; the reciprocating tool lays the fibres both ways, gets a harder enamel, and retains its firmness and lustre longer—same as it would by hand.

Int. 11. What is the advantage, if any, of complainant's machine over hand-work?

Ans. Quantity.

Int. 12. Please explain this more fully.

Ans. I don't know how to explain it more fully. I think that is all the explanation necessary on that. I suppose I might have said the quantity of work, that it will do more than hand-work.

Int. 13. Please state about how much is a fair day's work by hand in certain classes of work and how much by complainant's machine in the same classes of work.

Ans. In a good class of ladies' shoes, from two hundred to two hundred and forty pair a day by hand; from four hundred to four hundred and fifty pair a day on the machine. That is a good average right straight through on everything.

Int. 14. What other machines except complainant's and defend-

ants' are now on the market for setting sole edges which will do the same quality of work as that done by hand?

Ans. Hutchinson's, Trask's, Haverhill, and the defendant's are all that I know of on the market.

Int. 15. Have Hutchinson's and Trask's got into use anywhere, so far as you know?

Ans. Yes.

Int. 16. To what extent?

Ans. Very limited; three machines in Haverhill, in
372 different shops, of Trask's; three Hutchinson's in Lynn that I know of. Those machines that I speak of are not in operation; these are in the shops, and merely set there, as near as I can find out.

Cross-examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Cross-int. 17. Are burnishing tools usually made with a bead on the front side next the lip that goes into the space between the top of the sole and the upper?

Ans. Yes; that is my recollection.

Cross-int. 18. This bead, in the operation of burnishing, makes or goes into a small depression along the upper edge of the sole, does it not?

Ans. Yes; a depression or impression.

Cross-int. 19. Is it desirable that this place where the bead runs should be as highly finished as the upright edge of the sole?

Ans. Yes, sir.

Cross-int. 20. In the instruction of operators upon the complainant's machine did you find any difference in the time required for teaching between men who had worked on the Dodge or Hodges rotary machines and men who had worked only with hand tools, and as to the readiness with which they acquired the art of operating the complainant's machine?

Ans. Well, very little difference; but for preference I would take a hand-workman rather than one that had run the Dodge or the Hodges, either.

Cross-int. 21. Why?

Ans. Well, the man who gets used to working the Dodge, it is hard to get him out of the rut—the old way of running the Dodge. Another reason is that he is used to doing inferior work on the Dodge or Hodges. We require just as good work on the complainant's as they do by hand.

Cross-int. 22. What is the method of presenting the work to the Dodge and Hodges machines?

Ans. By a jack.

373 Cross-int. 23. Do all the parts of the tool in the complainant's machine burnish the sole where they touch it?

Ans. Where the tool touches it; yes.

Cross-int. 24. In the finishing of the edge of the sole does the lip on the front side of the tool burnish the sole or rand anywhere inside of the bead?

Ans. In some cases it does and in some it doesn't; it depends upon the kind of work.

WILLIAM GORDON.

Attest: WM. A. COPELAND,
Special Examiner.

(Complainant rests.)

374 *Evidence for Defendants.*

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, William A. Copeland, special examiner.

BOSTON, *October* 18, 1882.

Present: James E. Maynadier, Esq., of counsel for complainant; Thos. Wm. Clarke, Esq., of counsel for defendants.

Deposition of Spencer L. Drake.

Direct examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Spencer L. Drake; twenty-three; Lynn; agent for the American Edge Setter Company.

Int. 2. What experience have you had in the business of edge-setting?

Ans. About six years and two months at different factories in Lynn; all by machine.

Int. 3. What machines have you operated?

Ans. The complainant's and defendants'.

Int. 4. Are you also acquainted with the method of operating rotary machines?

Ans. I am.

Int. 5. What rotary machines?

Ans. The Dodge.

Int. 6. What machines have you operated or seen operated in which the work was presented on a jack, and what machines in which it was presented by hand?

375 Ans. The Dodge, Hodges, and Hutchinson on a jack; the complainant's and defendants' by hand. There is one rotary machine that I don't know the name of, in which the work is held up by hand, that makes waxed edges.

Int. 7. Please describe the method of presenting, holding, and pressing the edge of a shoe sole in the operation of burnishing on the defendants' machine.

Ans. The shoe is taken in both hands by the operator, the fore part is pressed against the face of the tool, at the same time drawing the edge of the shoe gently toward the lip or front part of the iron, then grasping the shoe either in the right or left hand, as the operator is best accustomed to, grasping the hand rest between the fore

and middle fingers, the other part of the hand grasping the toe of the shoe, the other hand grasping the heel, and pressing up to get the required pressure, moving the heel backwards and forwards and guiding the shoe by the hand rest and hand, passing down the other side as before described.

Int. 8. Does the face of the sole touch the front face of the hand rest?

Ans. No, sir.

Int. 9. How is it in this respect with regard to the face of the sole touching or pressing upon the guard or flange at the rear part of the burnishing tool?

Ans. The tool is supposed to be cut so that it cannot touch the face of the sole.

Int. 10. Have you a specimen shoe having the burnished edge; and, if so, will you please produce it?

Ans. I have, and now produce a pair of shoes.

(The shoes are now put in evidence and marked "Defendants' Exhibit Burnished Edge No. 1, W. A. C., sp'l ex'r," and "Defendants' Exhibit Burnished Edge No. 2, W. A. C., sp'l ex'r.")

Int. 11. I notice that these edges are of different section. Were they finished with the same shaped tool?

Ans. No; two separate tools.

Int. 12. In the shoe marked "Exhibit Burnished Edge No. 1" I notice that the sole is narrower upon its lower face than at the rand. Has this form of edge any particular name?

376 Ans. It has; a bevelled edge.

Int. 13. Was this shoe (No. 1) finished in the shank with the same tool that was used to finish the fore part?

Ans. It was.

Int. 14. Can you tell by examining the bottom of this shoe (No. 1) whether the face of the sole was borne or pressed hardly against the guard or back flange of the burnishing tool?

Ans. The guard or back flange performed the functions of burnishing this exhibit as it does in all bevelled edges.

Int. 15. Will you produce the tool with which the burnished edge of No. 1 was done?

Ans. I haven't it here with me, but I will produce it.

Int. 16. Will you produce the tool with which "Burnished Edge No. 2" was done?

Ans. I will; and here it is.

(The tool is now put in evidence and marked "Defendants' Exhibit Tool No. 2, W. A. C., sp'l ex'r.")

Int. 17. In burnishing the edges of shoe soles is it customary to rest the face of the sole against the back flange or guard of the tool?

Ans. It is not.

Int. 18. Please look at "Exhibit Burnished Edge No. 2" and say if there is any mark upon it, and what, produced by resting the face of the sole against the back flange.

Ans. There is a small impression made by the back flange near

the toe, on the left-hand side, to demonstrate what the result would be were I to use that as a rest for the face of the sole.

Int. 19. What effect did this have upon the position of the lip and bead making the rand finish?

Ans. Of allowing the lip and bead to strike and scar the upper of the shoe, which would spoil the shoe.

Int. 20. Is the tool "Exhibit Tool No. 2" the usual and proper sized tool for finishing this thickness of sole?

Ans. It is. Where the sole is of an uneven thickness a tool is used to fit the thickest part of the sole.

Int. 21. Now, suppose in coming down to the shank of
377 the shoe with the same tool you rested the face of the sole against the back flange of the tool, what effect would that have.

Ans. It would have the effect of cutting or scarring, as shown in "Exhibit Burnished Edge No. 2."

Int. 22. Is there any difference in the method of presenting the shoe to complainant's and defendants' machines as they are practically used except what is caused by the difference in the finger rest?

Ans. No, sir.

Int. 23. Suppose the finger rest or hook of the complainant's machine were set forward about three-eighths of an inch, so as that its front surface should be vertically under the slope of the back flange of the tool, how would that affect the operation of the machine?

Ans. As operators hold their shoes, it would not be practical.

Int. 24. In your experience as an operator upon both the complainant's and defendants' machines, which of the two is the most convenient and desirable machine as to the quantity of work, quality, and ease of operation and attendance?

Ans. Quantity and quality are about the same. The ease of operation is in favor of defendants'.

Cross-examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Cross-int. 25. Please write your name on that part of the sole referred to in the 18th interrogatory and answer.

Ans. I will.

(Witness writes his name as requested.)

Cross-int. 26. What defaced the upper and the sole edge on the right-hand side of the shoe "burnished edge No. 2"? I refer to one place on the upper, near the shank, which I will point out to you; one place where the lip apparently cut across the sole, where the shank and fore part meet; to impressions on the edge near the toe, and to a defect on the right-hand corner of the toe.

Ans. In the shank it was caused by the lip of the tool while using the guard as a rest for the face of the sole. In using it on the fore part you could get no impression of the lip or bead, but by
378 drawing the shoe towards the lip you obtain that impression. (To the place where the lip cut across the sole:) It was caused

by running down into the shank, which is no unusual thing on such a crooked shoe as this exhibit. (As to the right-hand corner of the toe:) If the right-hand side of the shoe had been of the same thickness as the toe, and had I pressed the shoe towards the lip, as is customary, there would have been no disfiguring of the toe. (As to impressions on the edge near the toe:) It was caused by the lip striking the shoe as the shoe was about to be pressed to the tool.

Cross-int. 27. Do you regard that shoe, "Exhibit Burnished Edge No. 2," as a fair sample of the work done on the defendants' machine by an expert operator?

Ans. In regard to the quality of the shoe and the work it has done on that quality where this "Exhibit Burnished Edge No. 2" came from, I do.

Cross-int. 28. Isn't it about the worst job you ever did on any machine?

Ans. I never undertook to set an edge, using the back of the iron as a rest, before I set the exhibit, which is burnished in that way.

Cross-int. 29. Who instructed you in the use of the complainant's machine, and about how long ago?

Ans. Mr. William Gordon; in August, 1876.

SPENCER L. DRAKE.

Attest: WILLIAM A. COPELAND,
Special Examiner.

(Adjourned.)

BOSTON, *October* 23, 1882.

(The tool referred to in the 15th interrogatory is produced and offered in evidence, marked "Defendants' Exhibit Tool No. 1, W. A. C., sp'l ex'r.)

379 BOSTON, *October* 19, 1882.

Deposition of Joseph E. Crisp.

Direct examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Joseph E. Crisp; forty-three; Somerville; machinist.

Int. 2. What has been your experience in the examination, investigation, and comparison of mechanical contrivances, and particularly such as relate to the manufacture of shoes?

Ans. In the past ten years I have examined and compared large numbers of patents for various contrivances, and I believe myself familiar with about all patents appertaining to the manufacture of shoes. These examinations have been made both for individuals and for use in courts and before the Patent Office.

Int. 3. Have you examined and do you understand the mechanism described in letters patent to Charles H. Helms, Nos. 173,284, dated February 8, 1876?

Ans. I have and do.

Int. 4. Please examine the "Exhibit Complainant's Machine," now shown you, and say whether or not that machine substantially represents in its organization the machine described in the complainant's patent; and also please say whether the adjustment and relation to each other of the tool and the finger rest referred to in the claim of complainant's patent and described in the specification thereof is the same in the machine as shown in the patent.

Ans. I find the machine substantially the same as described in the letters patent and as here organized, the relation between the tool and face of the finger rest substantially the same, but the finger rest as shown in the letters patent is capable of adjustment only towards the tool. In the "Exhibit Complainant's Machine" it can be adjusted either to or from the tool.

Int. 5. Have you examined and do you understand the contrivance shown and described in letters patent 147,552, dated February 17, 1874, to Augustus C. Carey?

380 Ans. I have and do.

Int. 6. Mr. Coy, an expert witness for the complainant, has said, in answer to interrogatory eight of his deposition, in substance, that shoes were presented before the complainant's invention to reciprocating burnishing tools upon a jack. Whether or not the said Carey patent illustrates a method of jack presentation to a reciprocating burnishing tool?

Ans. Yes.

Int. 7. Great stress has been laid in this case upon the presence in the burnishing tool, or as an extension of the burnishing tool, of a flange or lip on the back side of it. Please state whether or not the reciprocating burnishing tool of the Carey machine is represented as having such a flange or lip.

Ans. By the back side understanding the part of the tool outside of the sole, there is such an extension.

Int. 8. Mr. Coy, in answer to interrogatory 15, said in substance that before the date of the complainant's invention burnishing machines having rotary tools were in use, some of which employed a jack for the presentation of the shoe to the burnisher, and in some of which the shoe was presented to the burnisher by hand. Will you please examine the Tayman letters patent No. 136,790, of March 11, 1873, for improvement in machines for trimming soles of boots and shoes, and say whether or not that represents a burnishing machine, and what sort of a burnishing machine, whether rotary or reciprocating, and what sort of a presentation to the tool is there described, whether by jack or hand?

Ans. I have examined the same and find that it is a rotary burnishing machine with a circular or smooth burnisher; the manner of presentation by hand.

(The Carey patent shown the witness is produced in evidence and marked "Defendants' Exhibit Carey Patent of 1874, W. A. C., sp'l ex'r." The Tayman patent shown the witness is offered in evidence and marked "Defendants' Exhibit Tayman Patent, 1873, W. A. C., sp'l ex'r.")

Int. 9. Assuming it to be proved or conceded in this case that machines employing rotary burnishing tools had been in use
381 before the date of the invention of complainant's patent, both with jack presentation and presentation by hand, what specific difference in the method of hand presentation to the tool is shown and described in the Tayman patent, and what part of the machine is provided for furnishing assistance for the presentation of the work to the tool?

Ans. There is no specific difference in the manner of presentation by hand to the tools in either machine. In the "Exhibit Complainant's Patent" there is provided a hook or finger rest, D, for the assistance of the operator. In the Tayman patent, as shown by the drawings, there is a finger rest, marked *h*, for the assistance of the operator when holding the shoe against the trimming tool.

(Answer objected to by complainant's counsel as not responsive.)

Int. 10. What difference in the manner of presenting the shoe to the burnishing tool is there between the method and apparatus for presentation described in the Tayman patent and that described in complainant's patent?

Ans. None, except so far as relates in the case of complainant's patent to presentation to a reciprocating burnishing tool, and in the other to a revolving trimming tool or cutter. If the burnishing tool H of the Tayman patens were a grooved or serrated tool, serrated at right angles to its line of action, it would then require the aid of the finger rest to aid the operator, the action of the burnishing tool in both cases being the same.

Int. 11. Please state the difference, if any, between the mechanism described in the Tayman patent for guarding or gauging the shoe in the operation of burnishing and that described in the complainant's patent, and state whether or not such differences are material and substantial or not.

Ans. In the Tayman patent "when the edge of the sole is to be burnished the square part *b* of the swivel C is raised out of its seat *a*, and the head is turned one-fourth around, so as to bring the shaft E vertical and with the burnisher H on its upper end." By that I understand that the burnisher, when in use as described in the letters patent, revolves in a plane at right angles to that of the trimming tool, and the device shown for keeping the shoe in position is the loose circular guide N^1. In the complainant's patent, as
382 I understand it, the operator brings the face of the sole against the projecting rest D. The differences are material.

Int. 12. Mr. Drake, an operator on the defendants' machine, describes the manner of use of that machine as involving the pressure of the edge of the sole against the face of the tool, the operator at the same time drawing the edge of the sole gently towards the lip or front part of the iron; and he further says that the tool of the defendants' machine is supposed to be cut so that it cannot touch the face of the sole, by face meaning the bottom of the sole as worn. Mr. Coy and Mr. Brown, expert witnesses for the complainant, call the downwardly projecting flange of the tool in the complainant's

machine, at the rear of the tool, a rest for the face of the sole, and represent the sole as pressed against or in contact with the back flange of the tool. Supposing these two statements to be correct, is there any material difference between the method of operating the complainant's and defendants' machines?

Ans. There is; in one case, the first, with the shoe gently drawn towards the operator the inner or raced edge of the sole is finished, the result being marketable goods; in the second case, as tools for finishing sole edges are made with the distance between the flange or guard and lip just the width of the thickest part of the sole, if the face of the sole was pressed against the guard at all times the result would be injury to the upper at the counter on each side and the loss of a small bead or finish at part of the rand edge of the sole, thus making goods of a depreciated value in the market. An example of such result can be seen on "Defendants' Exhibit Burnished Edge No. 2," made by use of "Defendants' Exhibit Tool No. 2." As I understand it, the function of the guard is to assist the operator in the first presentation of the fore part of the shoe, as it is termed, to the burnishing tool.

Int. 13. Please examine carefully the complainant's patent and say what part of the machine therein shown and described is indicated to you as a mechanic to be a rest for the face of the sole, quoting the words that so indicate such part.

Ans. As I understand the patent, the rest for the face of the sole is about the centre of the piece marked D, some little ways
383 below the guard upon the tool C. "The workman passes the edge up against the tool (C), and the face of the sole against the surface which projects below the tool." That, I understand, to be part of the rest D.

Int. 14. Is there any indication to you, as a mechanic, in that patent that the rest for the face of the sole is a part of the tool or in the same piece with the tool?

Ans. None in the patent and positively none in practice with a rigid tool.

Int. 15. What has been your experience as a constructor of machinery or as a superintendent of the construction of machinery from written specifications and drawings; and what has been your success in making such machines work, as described in the specifications?

Ans. For the past twenty years I have constructed machinery from drawings made by myself, others, and copied from patterns, and I have generally found, after the machines were constructed from drawings and specifications, that more or less change was necessary to make them commercially operative. I am speaking with reference to what is termed new inventions.

Int. 16. Are you familiar with tools used for burnishing the sole edges of boots and shoes by hand before the yeer 1873?

Ans. I am.

Int. 17. Whether or not the working surfaces and flanges, if any, of such hand tools and the working surfaces and flanges of tools

used in complainant's and defendants' machines have any material difference.

Ans. In both cases they consist of a lip that projects inwardly and finishes the rand or welt corner of the sole, a face that finishes the edge of the sole, and a guard or long projection that enables the operator to start the tool upon the fore or thickest part of the sole. The hand and the machine tools are substantially alike.

(Adjourned.)

BOSTON, *October* 20, 1882.

Int. 18. In the state of the art prior to the date of complainant's patent, say as early as the year 1874, was it common and
384 usual to use edge-burnishing tools and edge-trimming tools interchangeably on the same part and in the same position of the machine and with the same driving mechanism? And, if so, please give an illustration of such use.

Ans. It was common to use both cutting and burnishing tools in the same position, as shown in the patent granted to L. Coté in 1873, No. 135,694, machine for trimming and burnishing the edges of boots and shoes, which I now present as showing the state of the art relating to rotary trimming and burnishing mechanism.

(The patent referred to is now offered in evidence and marked "Defendants' Exhibit Coté Patent, 1873, W. A. C., sp'l ex'r.")

In "Exhibit Carey Patent of 1874" there is clearly shown burnishing and trimming tools that can be made to operate in the same position. Therefore I understand it to be common at that date to use at will either burnishing or trimming tools of any class in the same position upon the machine.

Int. 19. In the rotary and reciprocating edge burnishing and trimming machines as they existed before the date of complainant's patent or at any time, where the tool revolved around a fixed centre or reciprocated around a fixed centre or in a given plane, and the shoe was brought up to the tool and moved under it in the operation of burnishing, so as to present all parts of the edge to substantially the same place for the operation of the tool as is done in the complainant's and defendants' machines to the reciprocating tools, was there or is there any difference in the mechanical conditions or requirements for the presentation of the work to the tool between the machines that employ a rotary tool and those that emplow a reciprocating tool?

Ans. With the rotary tools as commonly made the mechanical conditions of presentation required for work to rotary and reciprocating tools were substantially the same.

Int. 20. As a machinist accustomed to the examination of descriptions and drawings of machines, what, if any, mechanical difference do you find between the parts which are employed for the presentatien of the work to the tool in the machine described
385 in the Tayman patent and in the machine described in complainant's patent?

Ans. In the Tayman patent the parts described as aiding the

presentation of the edge of the shoe to the trimming tool are described as follows: "In connection with said guide N there is a gauge, O, seen in detail in Figs. 6, 7, and 8, which presses lightly upon the upper to assist in keeping the shoe in its normal position while the sole is being trimmed, and to prevent said guide N cutting the stitches. * * * P is a rest, shown in detail in Figs. 4 and 5, which is fastened by means of a screw to the swivel C; the object of this rest is to prevent the cutter F throwing the shoe out of its proper position when short curves of the sole are brought against the cutters. Q is a finger support, seen in detail in Figs. 9 and 10, which is secured to C by means of screws *g g;* it has on its front end a curved projection, *h*, on which the operator places a finger to steady his hand in holding the shoe and changing its position." P, as shown and described in the drawings, is a rest for the face or bottom of the sole. The above comprise the mechanism in the Tayman patent described for presentation of work to the tools. In the complainant's patent it says: "The combination of the finger rest D with the burnishing tool and the rest for the face of the sole is the main feature of my invention." This I understand to be a mechanical change of the parts P and *h* of the Tayman patent—that is, uniting in one piece of metal the functions of a rest for the face of the sole and a finger rest, as shown, that were before made in two detached pieces and different positions, the gauge O being discarded.

Cross-examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Cross-int. 21. Did you ever burnish shoe soles on either complainant's or defendants' machine?

Ans. Edges? (Counsel says, yes. Witness answers:) I did not.

Cross-int. 22. Did you ever burnish the edges of shoe soles on any machine, including both reciprocating and rotary?

386 Ans. The nearest attempt that I ever made at burnishing the edges of soles at any time was to hold the edge of a piece of wood or leather against burnishing and cutting tools to see their action.

Cross-int. 23. Did you ever burnish the edges of shoe soles with any hand tools of any kind?

Ans. No; but I have done about an equivalent thing, burnishing the edges of traces.

Cross-int. 24. I have no doubt that you are wholly wrong in thinking that there is any language in the complainant's patent meaning that the face of the sole is to be brought into contact with the finger rest. Please consider this matter again, and if you don't admit your mistake, state whether you cannot see that it is physically impossible to present the edges properly to the iron as shown in the drawings of that patent, if the face of the sole be kept in contact with the finger rest.

Ans. I have reconsidered the matter and do not see the slightest reason to doubt that the face of the sole can be kept in contact with

the finger rest if the bevel of the edge of the sole was coincident with the angle of the face of the tool, or the face of the tool coincident with the edge of the sole as presented, for instance, after the form of "Defendants' Exhibit Burnished Edge No. 1." The patent does not describe the angle of the edge of the sole with reference to the face or tread thereof. That angle has always been a matter of fancy.

Cross-int. 25. Do you know what the common names are for the several portions of the burnishing tool? If so, please state the names of the several portions shown on the iron in the complainant's patent, and of those on the fore-part irons in the "Exhibits Complainant's Machine and Defendants' Machine."

Ans. In the complainant's patent I understand the long projecting lip next the finger rest to be termed the "guard;" the part next, at an obtuse angle to it, to be termed the "face" or "bed;" the outward or small lip is called by that name, I believe, the "lip," and its functions to finish the welt or rand corner of the sole. On the complainant's and defendants' machines, in addition to those parts, there is a small raised projection, termed the "bead,"
387 for making or forming a finish line close to the edge of the rand or welt portion of the sole.

Cross-int. 26. Are you not aware that in burnishing a sole edge on the machine described in complainant's patent the prime necessity is to keep the bed of the tool in close and firm contact with the corresponding part of the sole edge?

Ans. I am.

Cross-int. 27. And can you not see, as a mechanic, that this close, firm contact determines the position of the curved surface on the bottom of the sole?

Ans. Most certainly it does.

Cross-int. 28. In view of your last answer, are you now prepared to testify that you believe that the front face of the finger rest determines the position of the curved bottom of the sole in the machine described in complainant's patent?

Ans. It does, in the terms of the patent; and with a tool as shown, the edge of the sole must be made to conform to the face of the tool in order to produce a finished edge.

(Noon recess.)

Cross-int. 29. Consider this: the bed of the tool must be in close, firm contact with the bed of the sole edge, and this obviously determines the position of the convex surface of the bottom of the sole. Isn't it perfectly plain, therefore, that it is simply impossible to properly burnish a sole edge on the machine described in the complainant's patent if the convex surface of the bottom of the sole be held against the surface of the finger rest; and, moreover, isn't this a matter about which rational dispute is impossible?

Ans. As I understand and interpret the relation between finger rest and tool, the face of the finger rest and the use of it as described in this patent would be equivalent, in comparison of relation between edge of sole to be burnished and face of tool operating thereon, to a

shoe presented to the tool upon a jack, and the effect of the tool upon the face of the sole the same. As to the second part of the question, the court can best decide.

Cross-int. 30. I have no doubt you meant to answer my question, but you haven't done so, in my opinion. The nub of the
388 question is, isn't it, in view of the facts stated, to which I think you assent, impossible to properly burnish a sole edge on the machine described in complainant's patent if the convex surface of the sole be kept in contact with the finger rest; and isn't that too plain for rational dispute?

Ans. No; not if the edge of the sole was trimmed by a cutter with the face in contact with an equivalent rest. In both cases, either trimming or burnishing, the edge of the sole will be presented, as can be plainly seen, at coincident angles to the tools, and the burnishing could be properly done.

Cross-int. 31. And, if I understand you, you agree with me as to all shoes trimmed with a hand plane or on machines where the judgment of the operator determines the relation of the sole edge to the trimming tool?

Ans. If you mean in a machine substantially like complainant's patent that it is impossible to successfully burnish the edges of boots and shoes with the face of the sole resting against the finger rest and the guard, I do; those edges being trimmed by the usual methods.

Cross-int. 32. It seems to me that the word "pass," in the paragraph from the patent quoted by you, is clearly a clerical error, being a misprint for the word "press;" do you agree with me?

Ans. I do not. As I understand it, the word "pass" in the letters patent means passing up by the rest for the face of the sole and the guard of the edge to be finished to the face of the tool.

Cross-int. 33. If I understand you, you think the machine described in complainant's patent is limited in its use to those shoes the edges of whose soles have been trimmed on a machine like the machine described in complainant's patent, except that a rotary trimming tool or its equivalent is substituted for the reciprocating burnishing tool shown in complainant's patent; am I right?

Ans. Either a reciprocating or rotary trimming tool could be used in forming the edge for the action of the burnishing tool, and that, in strict accordance with my construction of the patent, would be the scope of invention shown in complainant's patent. I understand the rest for the face of the sole to be a substitution for the jack
389 as a guide for the edge of the sole to the finishing tool. In strict accordance with the patent, to the question, yes.

Cross-int. 34. And what trimming machine do you think was in the mind of the writer of that specification or of the patentee?

(Objected to, that it is not legitimate in cross-examination to call upon an expert to exercise his imagination upon the contents of the mind of so distinguished and versatile a patent draughtsman as the complainant's counsel in the year 1875.)

Ans. Perhaps the Carey, where the trimming tool and burnish-

ing tool both operate upon the edges of the sole at coincident lines and angles. I refer to "Exhibit Carey Patent of 1874."

Cross-int. 35. I have no doubt that you are in error in your understanding of the Tayman patent. It seems perfectly clear to me that the rest P extends directly across the sole edge and has nothing whatever to do with the face of the sole. Please reconsider this and state whether you alter your opinion or not about the rest P.

Ans. Not in the slightest. The rest P, by actual measurement of the drawings, shows the working face back from the center of the tool about one-half the width of the section F' of the cutting tool, and the object of this rest is to prevent the cutter F throwing the shoe out of its proper position when short curves of the sole are brought against the cutters, the end surface of the rest P being the operative part in Fig. 2.

Cross-int. 36. It seems to me plain that you have measured the drawings incorrectly. I have no doubt that the end which you call the operative part is not the operative part, and is in the same plane with the rand guide. I just made measurements in your presence very accurately, comparing Fig. 4 with Fig. 1. Do you still think that you are right about the use of the end surface of the rest P?

Ans. I may be mistaken, as shown by measurement, but on Figs. 1 and 3 there are no lines indicating that said rest projects beyond the back edge of the cutter. Fig. 2, showing an end view of P, shows the line of the rand guide passing over the end of the guide P, and Fig. 4 of the drawing shows P as being square upon the top, whereas if P was intended to pass under and near to the

390 cutter it should have been shown concave upon tho top next the cutter. The model will decide the case.

Cross-int. 37. Look at the reissue of the Tayman patent, No. 9073, dated February 10, 1880, a copy of which is now shown you, especially Figs. 11 and 15, and assume that both these figures were drawn directly from the model, and state whether there is any doubt from the reissue as to the true construction and operation of the rest P.

Ans. If the model is in accordance with Figs. 11 and 15 of the reissue, I have no doubt. This is the first time I have seen the drawings of the reissue. One or the other of these drawings—that is the original and reissue—were not made in accordance with the model. I find that the rest P as shown in the drawings is different in form in the original and reissue, and am still in doubt.

Cross-int. 38. You have no doubt from the reissue, have you, that the Patent Office doesn't agree with your view of the rest P?

Ans. Not if they gave a careful examination to the model and the original; but the rest P in the reissue and the original are entirely different in form and, if allowable, I will file exhibits showing the difference of form, made from the drawings of the original and reissue.

(Complainant's counsel puts in evidence a copy of the Tayman re-

issue referred to and marked "Complainant's Exhibit Tayman Reissue, W. A. C., sp'l ex'r.")

Cross-int. 39. Now isn't it perfectly clear from Figs. 1, 4, and 5 of the original patent, supposing them properly drawn, that you are mistaken in thinking that the end surface of the piece in Figs. 4 and 5 is the rest P, and equally clear that the short surface connected in Fig. 5 with the letter P by a dotted line is the true rest P?

Ans. It is possible that I am mistaken, as the drawings in the original are perhaps somewhat imperfect.

Cross-int. 40. Are you not prepared to admit that you are mistaken?

Ans. No, I am not, without I could see the model.

Cross-int. 41. I mean, will you testify that you still think
391 that the end face of the piece shown in Figs. 4 and 5 is the rest P, in view of the fact that careful measurement of the length of the piece shown in Figs. 4 and 5 and a comparison of it with the same piece as partially shown in Fig. 1 makes it certain that this end piece cannot be the rest P?

Ans. I believe the face P as dotted to be the working surface.

Cross-int. 42. Please state all the reasons which lead you to think that the machine described in complainant's patent was intended for use with only that very limited class of sole edges mentioned in answer to your cross-interrogatory number 30.

Ans. My reasons are found in the letters patent as follows: "The workman passes the edge up against the tool, and the face of the sole against the surface which projects below the tool, and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger rest D, especially when burnishing the corners of the toes." This description requires the shoe at all times to be held against the rest D, and especially when burnishing the corners of the toes, and from the possibility that the inventor might have sought to secure the operating or guiding functions of a jack in hand presentation.

(Adjourned.)

OCTOBER 21, 1882.

Present: Counsel as before.

Cross-int. 43. Isn't it perfectly plain when you compare the angles of different cross-sections of any sole edge—I mean those angles formed by the junction of the bed of the sole edge with the face of the sole, or, if you prefer another way of expressing it, those angles formed by the tread of the sole and the surface of the edge—if you compare those angles with the angle formed by the bed and the guard of the tool shown in the complainant's patent, that it is physically impossible to apply any shoe that you ever saw to the machine described in complainant's patent and keep the tread of the sole in contact with the finger rest, and the bed of the tool in contact at the same time with the corresponding part of the edge of the sole, assuming, of course, always that the relation of the tool and
392 its guard to the finger rest are the same as shown in complainant's patent?

Ans. Yes; it is perfectly plain, to my mind, that shoes as ordinarily trimmed could not be successfully burnished with the face of the sole against the front of the finger rest.

Cross-int. 144. My question was a little broader. Did you ever see or hear of a shoe with all parts of the surface of the edge at such angle to the tread of the sole that it was physically possible to burnish the edge on the machine shown in complainant's patent and yet keep the tread of the sole in contact with the finger rest?

Ans. No.

Direct examination resumed:

Int. 45. Is it not common to finish the edge of the fore part and the edge of the shank of a shoe sole with tools of different cross-sections?

Ans. In heavy work I believe it is common to do so. Light work, I think, is usually finished with the same tool.

Int. 46. There is no mechanical impossibility, is there, in arranging a cutter and a finger rest in relation to each other substantially as the burnisher and the finger rest are arranged in complainant's patent and in making a cutting tool which should cut the edge of the shoe sole while the face of the sole was against the face of the finger rest to a form which a burnishing tool of corresponding section would follow when the face of the sole was held against the face of the rest in the burnishing machine?

Ans. No, as I have already stated in answer to cross-interrogatory 30.

Int. 47. But, as I understand you, it is easier and quicker to trim the edge of the sole without having the face of the sole rigidly pressed against a rest?

Ans. That is the general verdict of the trade as commonly practiced.

Int. 48. And hence it is better with soles so trimmed in a somewhat free position to use the edge of the sole where the bed of the burnishing tool bears as the guide of motion for the shoe, instead of the fixed face of the finger rest as the approximate centre of motion?

393 (Objected to, the witness having disqualified himself on cross-examination as an expert on that matter.)

Ans. Yes; that is true.

Int. 49. Will you please explain why in your examination of the Tayman patent of 1873 you came to the conclusion you did about the rest P and its function so different from the reading of the new drawing of the Tayman reissue of 1880?

Ans. I will first state that I had not seen the reissue patent until my attention was called to it, and in interpreting the original I found, first, a gauge, O, seen in detail in Figs. 6, 7, and 8, described as pressing lightly on the upper to assist in keeping the shoe in its normal position while the edge of the shoe is being trimmed and to prevent the guide N (the rand guide) from cutting the stitches. The patent says next: "P is a rest, which is fastened by means of a

screw to a swivel, C. The object of this rest is to prevent the cutter F throwing the shoe out of its proper position when short curves of the sole are brought against the cutters." As I understand this description, the active part of gauge O is directly over rest P. The drawings, with the exception of Fig. 5, show no continuation of the gauge P beyond the inside edge of the cutter, but the face end of rest P in Fig. 2 shows fully below the cutter and rand guide. If the rest P extended as in the reissued patent there would be no active combination of the gauge O, for the rounded bottom of rest P would prevent contact with gauge O. Again, the use of rest P in the practical operation of trimming would be detrimental rather than advantageous to the operator; but if the end of rest P was used as I described it in the original it would be advantageous in this respect: it would fulfil the condition of the guard upon the ordinary burnishing tool and prevent an unskilful operator from injuring the upper * * * " when short curves of the sole are brought against the cutters," thus making the rest P of some mechanical value upon the machine. Again, in Fig. 3, the rest P appears to rest against the face of the sole, the bottom of rest P showing at the cut I have made under rest P in " Exhibit Tayman Patent of 1873," and I could not imagine any contour of sole that would allow any continuation of rest P beyond the face of the sole.

394 Int. 50. Suppose it be true that the machine of the Tayman patent was so organized that instead of the rest P pressing against the face of the sole the rand guide or circular guide N was the thing which controlled the position of the tool upon the edge of the sole, as seems to be the notion of complainant's counsel, and suppose it also to be true that in the complainant's machine the edge of the sole is pressed up against the bed of the tool and the face of the sole rested against the guard, as seems to be the notion of complainant's counsel, and suppose it also to be true that in the defendants' machine the operator presses the shoe upward and pulls it forward so as to bear against the lip or rand guide, and not to have the face of the sole touch the guard except where it is desired and intended to burnish the face of the sole, which machine in operation does the defendants' machine most resemble, that of the Tayman patent or the complainant's machine?

Ans. That of the Tayman patent.

Cross-examination resumed:

Cross-int. 51. In your answer to cross-interrogatory 41 you say, as I understand you, that you believe the lower surface of the piece shown in Figs. 4 and 5 of the Tayman patent to be the rest P, and not the end surface of that piece; but in your 49th answer you seem to me te argue the contrary. Please state again, therefore, whether you now believe the piece shown in Figs. 4 and 5 of the Tayman patent to be the rest for the face of the sole or a rest for the edge of the sole, and also, in the course of your answer, correct your statement, if you find it incorrect, that " the active part of gauge O is directly over rest P," for it seems to me clear that the active part of gauge O is not directly over rest P.

Ans. In answer to cross-interrogatory 41, after the assurance of complainant's counsel and examination of the reissue, I did say that I believed the lower surface of the rest P, as indicated by the dotted lines, to be the working surface. In my answer to the 49th interrogatory I gave my reasons for the conclusion arrived at by an examination of the original letters patent, unaided by such explanation and reissue.

395 With reference to gauge O, from examination of Figs. 2, 7, 8, and 3, I can no more than say it is almost impossible to determine the position of the working face, for the difference in length in the drawings, Figs. 2 and 7, is over five-one-hundredths of an inch. Therefore I assume that I am right in my explanation.

Cross-int. 52. You have not answered the direct question. Please do so.

Ans. By the original patent alone I must understand rest P abutting against the face of the sole, as shown in Fig. 3.

Cross-int. 53. I will repeat, then, cross-interrogatory 41, namely: "I mean, will you testify that you still think that the end face of the piece shown in Figs. 4 and 5 is the rest P, in view of the fact that careful measurement of the length of the piece shown in Figs. 4 and 5, and a comparison of it with the same piece as partially shown in Fig. 1, makes it certain that this end piece cannot be the rest P?"

Ans. I believe the face P as dotted to be the working surface.

Cross-int. 54 (*de bene*). What is your opinion as to the substantial identity of the defendants' machine with the machine described in complainant's patent, assuming that the combination patented in that patent is that of the finger rest with the burnishing tool and its guard?

Ans. They are substantially alike, the finger rest in the complainant's patent being grasped by the fingers and fixed, the finger rest in defendants' machine being grasped between the fingers and movable at will of the operator.

Cross-int. 55 (*de bene*). I understand you to think that in the use of defendants' machine the face of the sole is never pressed against the guard of the tool. If I am right, please state what work you think is done by the guard of the tool on defendants' machine when so used.

Ans. The edge of the sole is passed up by the guard using it as a guide to start the lip of the tool into the rand on the fore part; it also, when made of proper size, just touches the thickest parts of the sole on its face near the edge as it passes through the tool in the act of burnishing.

Cross-int. 56 (*de bene*). Isn't it perfectly plain that the guard
396 of the burnishing tool on defendants' machine, as well as on complainant's machine, either does no work at all and is useless wholly during the operation of burnishing, or else that the face of the sole is pressed against the guard?

Ans. When properly made, as I understand it, the corner formed by the bed and guard, where the edge of the sole is of equivalent thickness, should finish what is termed the feather edge; but in actual

practice I believe that one-half the time on each shoe burnished that corner does not come in contact with the face of the sole; it is useful when touching, useless when away from the face.

JOSEPH E. CRISP.

Attest: WILLIAM A. COPELAND,
Special Examiner.

(Adjourned.)

BOSTON, *October* 23, 1882.

Present: Counsel as before.

Deposition of Robert Ashe.

Direct examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Int. 1. Please state your name, age, residence, and occupation.

Ans. Robert Ashe; forty-one; Somerville, Mass.; machinist.

Int. 2. What has been your acquaintance with edge-setting, either by hand or by machinery, and for how long have you been familiar with tools and machines employed for that purpose?

Ans. I burnished edges by hand for nearly three years before 1867. I have been acquainted with machinery of different construction and method of operation for about eleven years, for doing similar work.

Int. 3. Have you specimens of the tools employed in edge-setting by hand? And if so, please produce such specimens, explain the manner in which they are used and the working parts of the tools, and state whether or not the tools used by you before 1867 contain similar working parts and were used in the same way.

Ans. I have some specimens of sole-edge burnishing tools
397 similar to some of those that I used to use by hand. There was a wheel tool, known as the Todd iron, also in use, of which I have not a specimen. The specimens I have here consist of what is known in the trade as, first, a square-edge bead lip; second, a bevel edge; third, a round edge or shank iron. These tools, when being used, are laid on the edge of the sole of boot or shoe, and reciprocated by hand backward and forward on the sole edge until the necessary degree of finish is obtained. The same method of using applies to all the specimens of tools shown.

On the square-edge example shown, the working or burnishing parts of the tool consist in the lip, the bead, and the bed or face, the outer guard simply assisting to keep the tool in its proper position upon the edge of the sole.

On the bevel-edge iron the working parts consist of a lip, sometimes a bead, sometimes without—the example shown has a fine bead—the bed, and so much of the bevel guard as shall come in contact with the edge of the sole of boot or shoe to be burnished. The working parts of the third or round edge are similar to those of the bevel edge.

I have used tools before 1867 that contained all the working parts of the examples here produced, and they were used in the same way.

(The tools referred to are offered in evidence and marked "Defendants' Exhibits Hand Tools, Nos. 3, 4, and 5, W. A. C., sp'l ex'r.")

Int. 4. Please state, in the use of hand tools, what part of the tool burnishes the sole.

Ans. In some classes of work the lip is intended to burnish the upper face or rand side of the sole, except when used upon what is known in the trade as "fair stitch" work, in which case the lip is made open expressly so as not to interfere with the stitches. The bead can hardly be held to perform any burnishing office, its purpose being to leave a depression or finished line around the sole on the top or rand side. The bed and lip only burnish in square-edge work. In bevel and round edges the guard, or such part of it as will come in contact with the prepared sole, always burnishes, as well as the lip.

398 Int. 5. Is there any difference in the parts of the tool which burnish between the hand tools and the machine tools on an edge of similar cross-section.

Ans. Not the slightest difference between the parts that burnish.

Int. 6. Have you ever heard, and, if so, when and where, the part of the burnishing tool which you call the guard called the rest for the face of the sole?

Ans. The guard is the name by which that part of a sole-edge burnishing tool is known, I might say, everywhere. I have never known it or never heard it referred to by any other name until I became aware of such name being applied to it by complainant's counsel in this controversy.

Int. 7. What acquaintance have you had with edge-burnishing machines, and when and where, and with what sort of machines, describing their construction and operation?

Ans. My first acquaintance with sole-edge burnishing machines was upon seeing the Hodges burnishing machine, eleven years ago, as near as I can place it. I am not very familiar with the construction and operation of that machine, but I think the boot or shoe to be burnished was held upon a jack, the burnishing tool being carried in a swinging frame, the frame of the burnishing tool being brought to the edge of the shoe, the jack carrying the shoe capable of being revolved against the tool. The next machine of my acquaintance for doing that work was what is known to the trade today as the Dodge machine, and on that machine the shoe is also jacked; the burnishing tool is also carried on a swinging frame, which frame is connected with a swinging lever, arranged and suspended over the arm of the operator, and in that machine also the burnishing tool is brought by hand to the edge of the boot or shoe to be operated upon, but it is capable of being moved or reciprocated along the entire edge of the boot or shoe, the jack carrying the boot or shoe being usually held by the left hand of the operator, so that all parts of the boot or shoe are brought against the burnishing tool as required. In both of these machines the burnisher was a rotary tool. The next sole-edge burnishing machine of my acquaintance

was one shown me at the shoe manufactory of William Bos-
399 tock & Sons, Stafford, England. That machine used a reciprocating burnishing tool moving in a horizontal plane, the shoe being carried upon a jack, which jack was mounted upon a movable plate having a T groove on its under side. This plate, with its jack, was moved by hand upon a larger plate or table of the machine by the person operating it, and had an upright post or standard under the lever carrying the burnishing tool. This post or standard, which was about five-eighths of an inch in diameter, was used by the operator to steady the toe end of the jack carrying the shoe. This was known there as the "White machine," called so after the builder. It was shown me in the latter part of 1874. From that time until June, 1881, among other work, I superintended the manufacture of boot and shoe burnishing machines under the Southall patents. These machines also used a reciprocating tool moving in a horizontal plane, and the shoe or boot was mounted or carried on a jack, moved automatically against the burnishing tool by means of a rack and pinion.

(All that part of the answer relating to the White machines, so called, objected to as immaterial.)

Int. 8. How many Southall machines did you know to be put in use?

(Objected to as immaterial, the use of the machine being abroad and the machine not having been sufficiently described.)

Ans. When I left England, to the best of my knowledge there were ninety or a hundred of them in use and about twenty-five being built.

Int. 9. What sort of work, as compared with hand-work, did this machine do?

(Same objection.)

Ans. Those who used the machines—I might say some of those who used the machines, for I didn't know all of them—told me that upon the work on which they used them there was better satisfaction than when it was done by hand; especially was that the case upon heavy work. The quantity of work which one man with two machines could do was about equal to what four could do by hand, the quality of the work being usually pronounced better.

Int. 10. Have you a specimen of a shoe with a burnished
400 edge and of the tool which burnished it, in which the guard or back flange of the tool was no deeper than the burnished surface; and, if so, please produce such shoe and tool, and explain on what machine the work was done, and whether there was any disadvantage in reducing the size of the back flange.

Ans. I have a shoe that was burnished by a tool, all parts of that tool not necessary to produce a burnished surface having been cut away. The shoe was burnished on one of defendants' machines, back and fore part being done with the same tool, the cutting away

of so much of the tool as was not required to burnish producing no inconvenience whatever. There is the shoe and there is the tool.

(Offered in evidence and marked (the shoe) "Defendants' Exhibit 6, Burnished Edge," and (the tool) "Defendants' Exhibit 6, Burnishing Tool, W. A. C., sp'l ex'r.")

Int. 11. Whether or not the work on the shoe just produced is equal in quality to work on such shoe edges done by machine or hand with tools having a deeper guard?

Ans. The exhibit shown before I got it was a damaged shoe condemned for a fault at the shank, which may be seen (pointing it out), and lay for some two years among some other rubbish in the factory where it was made, so that when I got it it was exceedingly dry and not in proper temper for working. Under these conditions it is almost impossible to produce as fine a finish on the edge as on shoes when first made; but even under these unfavorable conditions the edge of the shoe shown is good and could not possibly be improved by any conditions embracing a longer flange or guard on the burnishing tool. The only conditions under which a better edge could be produced would be to have the leather in proper temper for working.

Int. 12. Have you also a specimen shoe burnished upon its edge without contact of the sole of the shoe with the guard or back flange; and, if so, will you produce it and the tool with which it was done, and state what sort of work in burnishing that presents?

Ans. I have such a shoe. This also, like "Exhibit 6, Burnished Edge," was an old and dried-up shoe, and consequently the finish on the edge is not as good as it would be if the shoe were just
401 made. The quality of the work is as good as could possibly be on a shoe in the condition the shoe was in.

(The shoe referred to is offered in evidence and marked "Defendants' Exhibit 7, Burnished Edge, W. A. C., sp'l ex'r," and the tool is offered in evidence and marked "Defendants' Exhibit 7, Burnishing Tool, W. A. C., sp'l ex'r.")

Int. 13. Please state with regard to the shoes "Exhibits 6 and 7" why you did the burnishing upon them without retempering the sole leather.

Ans. It is a question of time in each case. I went to Lynn this morning for "Exhibit 7," and if I waited to wet it and let it dry and get it into reasonable temper I could not have got back here in season for the hearing to-day. In case of No. 6 it was somewhat similar. I had 25 minutes to catch the train after I decided to have it done, and I had a 15-minute walk to the cars.

Int. 14. Please look at the Southall & Heap English specification, A. D. 1863, No. 2755, now shown you, and particularly at the drawings, and say whether those drawings or any part thereof illustrate the tool and jack and method of connection and arrangement applied in the Southall machines that you have referred to.

Ans. To some extent they do. The arrangement driving the mechanism carrying the jack, as shown in Fig. 1, bears some resem-

blance to the Southall machines already referred to by me. Figs. 10 and 11, which are detailed views of a jack and some of its operating mechanism, also appear to be somewhat similar, especially with regard to the means provided for tilting, elevating, or depressing the heel and toe of the jack. Fig. 9 appears to be a cam. I do not know that it is a cam without referring to the specification. It very much resembles a cam that I have seen used on the Southall machines. (After referring to the specification.) Fig. 9 is a cam. The burnishing tool has partly a similar movement as the later Southall machine that I have already referred to, but its operating mechanism is different, and it does not reciprocate. It appears to embrace those features of the later Southall machines which enables the tool to be continually pressed against the edge on boots and shoes of various sizes representing various lines of curvature,
402 and also being provided with means for raising it up or for allowing it to drop down, so that the guard of the tool shall at all times rest upon the face of the sole in the process of burnishing.

Int. 15. Please look at the English specification of Southall and Blakey, A. D. 1870, No. 3048, now shown you, particularly at the drawings thereof, and say whether or not that illustrates the machine you have spoken of as the Southall machine.

Ans. These drawings illustrate the first Southall machine that I ever saw. All alterations existing in the Southall machines as at present made, from the drawings here made, are such as were suggested and made by myself during the last eight years.

(Defendants' counsel offers in evidence the specifications shown the witness, and they are marked "Defendants' Exhibit Southall Patent, 1863, W. A. C., sp'l ex'r," and "Defendants' Exhibit Southall Patent, 1870, W. A. C., sp'l ex'r.")

Int. 16. Please point out on the drawings of the Southall patent of 1870 the burnishing tool, and state how it is lettered.

Ans. It is marked U^4, Figs. 16 and 17 (pointing it out).

(Defendants' counsel offers in evidence letters patent to E. T. Ingalls, No. 28881, May 8, 1860, and same is marked "Defendants' Exhibit Ingalls Patent, W. A. C., sp'l ex'r.")

Int. 17. Please examine "Exhibit Complainant's Patent" and say whether or not a skilled workman acquainted with the art of making and using sole-edge burnishing machines could from that patent and the information therein contained make and use successfully a sole-edge burnishing machine which would be commercially practical, giving your reasons for any opinion you may express.

Ans. I have carefully examined complainant's patent and I do not think that a skilled workman could succeed in making a commercially valuable machine for doing the work therein set forth with no other information before him than that contained in the drawings and specifications of the patent. One reason why I think so is because the finger hook shown in the drawings, in its relation to the burnishing tool, is such as to interfere with the fingers of the

operator and thereby render the operation of the machine to some extent impractical. Another reason why I think so is because
403 the specifications and drawings are misleading and defective, inasmuch as one of the things which is claimed as an element of invention is not specifically set forth in the specification, nor is there anything in the drawings to indicate what it is.

Int. 18. Is any provision made in the patent for moving back the finger rest so as to allow room for the fingers of the operator in front of it?

Ans. As shown in the drawings, there is not. The only motion provided for is towards the tool.

Int. 19. What is the office or duty of the guard or back flange of the burnishing tool in machines like the complainant's and defendants'?

Ans. In burnishing a square edge, which is the only case in which the term "guard" can be applied to a burnishing tool with any due regard for truth and the correct meaning of words, its office or purpose is, in the first instance, to act as a guide to the operator when first presenting the edge to be burnished to the tool. For this reason the guard on tools used in machines is usually made longer than on similar tools to be used by hand, so that the inner lip or rand guide may not come in contact with or injure the surface of the edge, and when the shoe is placed against the tool to assist the workman in guiding it while the edge is being burnished, and also to prevent the shoe slipping in the direction of the guard, so that the lip or rand guide may not come in contact with it or damage the upper. This latter statement is also applicable to similar irons when used by hand. With regard to round or bevelled edges, correctly speaking, there is no guard, as every portion of the tool that comes in contact with the sole edge of a boot or shoe burnishes, the length of burnishing surface from the bed of the tool being entirely determined by the thickness of the material to be acted upon, as may be seen by reference to "Defendants' Exhibit Burnished Edge No. 1" and "Defendants' Exhibit 6, Burnished Edge."

(Adjourned.)

OCTOBER 24.

I desire to say, with regard to the Southall machines, that the tool of the first machines I saw had no proper motion of its own.
404 The shoe sole was rubbed against it by the motion of the jack, first in one direction all round, then back in the opposite direction. Afterwards, in 1871, the machine was made so that the tool had a reciprocating motion of its own.

Int. 20. Are you acquainted with any machine patented or described or in use prior to 1875, in which there was provided a rest attached to the stationary part of the machine against which the face or bottom of the sole rested or was directed to be rested in the act of burnishing; and, if so, what patented or other machine?

Ans. I have seen a drawing of a patented machine of the patent to N. S. Thompson, November 8, 1865, No. 50856, in which a device is shown, indicated on the drawing by the letter F, which is used as

a rest or guide for the face of the sole of a shoe while the edge of the sole is being operated upon by the burnishing tool. I am also acquainted with a machine which in general construction and operation very much resembles the machine shown in the Thompson patent; several of these latter machines I understand have been used for some ten or eleven years in Mr. Critchett's shoe manufactory at Belfast, Me., where, I am informed by the proprietor of the factory, they are still in use. I have a memorandum of the name, and will furnish it hereafter.

(Thompson patent offered in evidence and marked "Exhibit Thompson Patent.")

Int. 21. With your knowledge of the state of the art at the date of the complainant's patent, what signification would you or any other experienced person in edge-burnishing machinery have given to the words "rest for the face of the sole," employed in the 5th paragraph of the complainant's patent specification and in the 1st claim thereof, and why?

Ans. I should say that to my mind it would signify the front end or face of the piece marked D in the drawing, also called "finger rest" in the specification. I think it would appear to signify the same to any person having no more information than that contained in the patent, and with all the information that is contained in the prior patents or machines. I cannot see how any different opinion can be arrived at, because an examination of the drawings
405 shows the piece marked C a shoe-burnishing tool. There is nothing to indicate that the piece marked C is intended to perform any office or purpose from what similar burnishing tools had previously been employed to do. Again, on reference to the specification, it reads as follows: "The workman passes the edge up against the tool and the face of the sole against the surface which projects below the tool." Now, it appears to me that as there is no surface below the tool except the front face of the piece marked D that face must reasonably be held to be the "rest for the face of the sole."

Again, quoting from the patent: "And gradually moves the shoe so as to bring all parts of the edge to the action of the tool, steadying the shoe by the aid of the finger rest D." These words appear to convey the impression that it is intended to rest the face of the sole of the shoe against the front face of the piece marked D. The patent further states "especially while burnishing the corners of the toe," which would convey the impression that it is really necessary to cause it at that particular time. Again, if a burnishing tool for a round or bevel edge be used in the machine there is no part of such a tool that can come in contact with the edge of a sole of a boot or shoe but will burnish, and no part of such tool projecting beyond the burnished line can come in contact with the face of the sole; and if a tool be used in the machine for finishing what is known in the trade as a sunk channel there is no part of such tool need project beyond the line to be burnished, and consequently there can be no part of such tool available for any other purpose than burnish-

ing. "Defendants' Exhibit 6, Burnishing Tool," is an example of such a tool, and "Defendants' Exhibit 6, Burnished Edge," is an example of its work. And besides, in all burnishing machines with which I am acquainted that were made and used previous to the date of complainant's patent and which provided for the shoe to be presented by hand in the operation of being burnished, the rest for the face of the sole was a fixed rest or guide.

Int. 22. If a person acquainted with edge-burnishing machines and the names applied in the art or trade to the parts of those machines had been disirous of pointing out with technical accuracy the flange projecting downward from the burnishing tool on
406 the side of the face of the sole where such tool is at work what word or words would such accurate and experienced person have used to indicate such flange?

Ans. The technical term is "guard."

Int. 23. Besides the Thompson patent, to which you have referred, was there any other patented machine which showed a stationary rest for the face of the sole adjacent to the burnishing tool; and, if so, what? And please read from the patent the part relating to such rest.

Ans. The patent issued to A. C. Carey, dated July 16, 1872, No. 129,457, does show such device. I will read from the patent: "Below this rotary burnishing tool is a rest and guide plate, *g*, against which the bottom of the boot or shoe is held in presenting the heel or sole edge to the action of the burnisher." This piece, called the rest or guide plate *g*, appears to be intended to perform a similar function or office to that performed by the guide F in the Thompson patent that I referred to.

Int. 24. In burnishing the edge of the shoe sole is it usual or customary to employ more than one tool?

Ans. That depends somewhat upon the quality and style of the work to be done. On some classes of what is called fancy edges it is usual to employ two tools, but on square-edged work, when such work is not considered of the first quality, it is customary to finish the shank and fore parts with the same tool. That custom prevails in some of the largest establishments in the country.

Int. 25. In the practical operation of edge-setting how do machines like "Exhibit Defendants' Machine" compare with those like "Exhibit Complainant's Machine"?

Ans. In my own experience, which has not been very extensive on either complainant's or defendants' machine, I have found defendants' machine to be much easier in its operation. In answer to inquiries addressed to operators I learn in every case that their preferences are decidedly in favor of the defendants' machine.

Int. 26. Which, in your experience, is the lightest running machine and the easiest for an operator, and why?

Ans. Defendants' machine is decidedly the lightest and
407 easiest for the operator. It is lighter running than the complainant's machine because the mechanical principles embodied in its construction are superior to those in any other. The principal reason why it is lighter running is because the recipro-

cating lever which carries the burnishing tools weighs only about twenty ounces and, being balanced, produces when running scarcely any vibration, while the reciprocating lever of complainant's machine with its attachments weighs, I think, between four and five pounds, and, reciprocating in a horizontal plane and not being balanced, causes in running a very great vibration, so much so that in some workshops other machinery cannot be used in close proximity to it, and owing to this vibration workmen on the machine—that is, complainant's machine—are sometimes so affected as to be incapable of working on it.

Int. 27. In modern practice with the complainant's machine is the front face of the finger rest used as a rest for the face of the sole?

Ans. It is not. It cannot be so used practically.

Int. 28. Why not?

Ans. Because if it were brought forward to such a relative position to the burnishing tool as is shown in the drawings of complainant's patent it would interfere with the fingers of the operator, and I think it would be difficult, if not impossible, to burnish edges of boots and shoes after the heel has been put on.

Int. 29. Are you the patentee of machines like defendants' machine; and, if so, what patents have you obtained upon it, and what other application for patents have you allowed but not taken out?

Ans. The 1st patent is No. 251,154, dated December 20, 1881; the 2d one, No. 254,859, dated March 14, 1882; 3d, No. 254,860, dated March 14, 1882. I have one application for letters patent.

(The above-mentioned patents are offered in evidence and marked "Defendants' Exhibits Ashe Patents 1, 2, and 3, W. A. C., sp'l ex'r.")

408 Cross-examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Cross-int. 30. In the Ingalls patent what do you think is the work done by what you call the "guard" of the tool?

Ans. I think the work done by the guard of the tool in the Ingalls patent is the same as the work done by the guard of every other burnishing tool—that is, it assists in guiding the tool in its work and prevents it falling upon and consequently damaging the upper.

Cross-int. 31. Is not this guard pressed down upon the face of the sole by a spring at the same time that the other parts of the tool are pressed hard upon the edge, and does it not keep the tool in proper relation to the edge, solidify and shape the outer corner of the edge, compel the tool to swivel so as to keep the face of the burnishing tool straight across the edge and so as to keep the rand lip and bead from injuring the edge by compelling the rand lip to travel in the rand—that is, assuming that a rand lip and bead were used on the Ingalls machine, though so far as I know no rand lip or bead was ever used in the Ingalls machine,

and assuming also that the guard was a common guard or a straight single guard?

Ans. The guard of the tool appears to be pressed down upon the face of the sole by a spring, which I know in practice is not necessary. So far as assisting in the proper presentation of the burnishing tool to the edge to be burnished, assuming the tool to be furnished with a lip or rand guide or to any other point set forth in the interrogatory, my first answer is applicable, as it performs no new purpose or function or differs in results in any particular from the work done previously by ordinary burnishing tools.

(Adjourned.)

BOSTON, *October* 25, 1882.

Present: Counsel as before.

Cross-int. 32. You haven't answered my question. Please do so.

Ans. I don't know what I can say in answer to the question more than I have already answered. As I understand the question, a spring was employed for pressing the guard on the sole of
409 the shoe, and would, if the tool was not provided with a lip or rand guide, assist in properly presenting the face of the burnishing tool to the edge to be burnished; but if the burnishing tool be provided with a lip or rand guide the spring is absolutely of no service, other machines working in a similar way without any spring, thus proving the fact of a spring being unnecessary. As to any other office or function performed, it differs from no other sole-edge burnishing tool as previously and since used by hand.

Cross-int. 33. The object of my question was to get from you a full statement of the work you believed to be done by the guard of the Ingalls burnishing tool. Please hear my question re-read, and say, first, whether you think I have correctly described the work done by this guard or flange or sole-face rest (the latter being the term that I prefer); and, secondly, wherein I am wrong, if you think I am wrong; and, thirdly, what work you think this guard does other than that I have described in my question. I will add that I am well aware that the guard in the Ingalls burnishing machine is the same in all substantial respects as the guard upon the well-known hand-burnishing tool, taking a rough and general, but on the whole a fair, view of the two tools.

(The "well-aware" part of the question objected to, because inspection of the Ingalls patent shows to a merely casual observer even great specific differences between the part of the tool which rests on the face of the sole in the Ingalls patent and the guard of the ordinary hand tool.)

Ans. The term sole-face rest I do not understand. I don't know how that term can properly be applied to the guard of the Ingalls machine, as it in no sense acts as a rest for the face of the sole, the shoe being held firmly on a jack and the sole of the shoe acting as a stop for the guard of a burnishing tool in the same manner as the

edge of the sole acts as a stop for the burnishing part of the tool. You are right so far as it would act in preventing the lip or rand guide, assuming the tool to have such, from doing injury to the upper. I think that you are wrong if you assume that the guard of the burnishing tool does, or is expected to do, any other work in the process of burnishing the edge of boot or shoe than what
410 I have already stated. So far as its actual benefit or utility in burnishing, it does no other work.

Cross-int. 34. Doesn't the guard of the Ingalls burnishing tool keep the face or bed of the tool in proper relation to the sole edge, in your opinion?

Ans. I have already said that it does assist in doing so.

Cross-int. 35. Doesn't it also solidify and shape that corner of the sole which is formed by the junction of the edge with the face or tread of the sole, in your opinion?

Ans. If used upon a square edge on which the iron is a reasonable fitting tool for the edge, unless there is what is known in the trade as an outer bead, I do not understand how a surface standing at an angle of ninety degress or more from the burnishing face of the tool, and which is not expected to do finished work, can be reasonably held to perform any of the work of such burnishing face. If the guard is made to press fairly hard on the surface of the sole the result of such pressure will be an injury to the face of the sole of the boot or shoe, as it will affect the grain of the leather, thereby rendering it more difficult to finish than the other portions of the sole not similarly affected.

Cross-int. 36. I think you can answer the question more directly. Please do so if you can.

Ans. I have endeavored to answer the question fairly and truthfully with my knowledge of finishing edges of boots and shoes. I cannot reasonably or truthfully say that the guard of the burnishing tool in the Ingalls or in any other machine, or when used by hand, does anything more than what it does.

Cross-int. 37. If I understand you, you do not believe that the guard and the face of the tool acting together solidify and shape the corner of the sole edge; am I right?

Ans. The edge of a boot or shoe being trimmed to suit a tool, and the tool being made of suitable fit for the edge, this having reference wholly to square edges, I cannot see how that portion of the burnishing tool which is called the guard, and which never comes in contact with the burnished edge, can render any very great assistance in producing or finishing such burnished edge, the edge
411 being previously formed to fit the tool and the tool of suitable form for the edge.

Cross-int. 38. I do not see how your answer relates at all to the question. The question is about solidifying and shaping the corner formed by the burnished edge and the face or tread of the sole.

Ans. As to shaping, you are most decidedly wrong. As to solidifying, it could be done by risking an injury to the boot or shoe, as I have previously stated. An example of a square edge finished on one of defendants' machines with a tool having no guard or any-

thing to press against the outer surface of the sole may be seen in the shoe "Defendants' Exhibit 7, Burnished Edge."

Cross-int. 39. By square edge you mean all soles in which the surface of the edge makes an angle with the tread or face of the sole, don't you?

Ans. Generally speaking, I do, some such edges being flat, some of different degrees of convexity.

Cross-int. 40. Another way of putting it is to call all edges square edges in which no part of the edge or face of the sole is cut away when trimmed; is that right?

Ans. Not always. What is known in the trade as a sunk channel is a square-edged shoe, as shown in "Defendants' Exhibit 6, Burnished Edge."

Cross-int. 41. I observe that the corner made by the bevel face and edge of "Exhibit 6, Burnished Edge," is what I call solidified and shaped; isn't it perfectly plain that that edge was solidified and brought to its present well-defined shape by the action of the guard and bed of the "Exhibit 6, Burnishing Tool"?

Ans. "Exhibit 6, Burnished Edge," is a finished burnished edge as far as the burnishing tool can reach upon it. That edge was prepared for the tool the same shape as the tool. Therefore the tool did nothing in the process of burnishing that shoe but the ordinary work of a burnishing tool. Complainant's counsel asks, "Was not a portion of that burnished surface done by the guard of the tool?" I answer that no part of the burnished edge of a shoe is ever burnished by the guard among those skilled in the trade of making shoes, the guard being always held to extend beyond the bur-
412 nishing portion of the tool. I might agree with the counsel that the guard did that particular part referred to by him in "Exhibit 6, Burnished Edge," but my agreeing to call that part of the burnishing tool which did this particular work a guard would not mean a guard as technically known in the trade.

Cross-int. 42. In order to get rid of our disagreement as to names, please consider the burnishing tool as having a surface at something more than a right angle to what is commonly known as the bed of the tool and state what work you think this surface does on the hand tool produced by you and in other hand tools of the same kind; and in order to prevent another misunderstanding, bear in mind that my question is limited wholly to that part of the surface in question that does some work. It doesn't relate to any idle part of that surface.

Ans. "Defendants' Exhibit Hand Tool No. 3" is a square edge with lip and bead inside, with a guard on the outside. The object and function of that guard in that tool is to assist a workman in guiding it upon the edge of the sole to be burnished and to prevent its slipping in the direction of the upper and thereby damaging the upper. That I believe to be the true purpose and function of that tool now, henceforth, and forever. "Defendants' Exhibit Hand Tool No. 4" is a bevel edge having what is known in the trade as a double guard. The short or higher part of this in practice is not a guard, as it is used entirely to burnish, the lower or outer portion

never coming in contact with the bottom of the sole. "Defendants' Exhibit Hand Tool No. 5" may be used as a shank iron or for finishing round edges or fore parts. In this tool, also, the lower or outer portion of what may be termed the guard never comes in contact with the bottom of the sole.

Cross-int. 43. Shouldn't you have added as another function of that surface that stands at something more than a right angle to the bed of the tool to solidify the corner on the leather corresponding with the angle formed by that surface and the bed of the tool or to prevent the formation of a burr at that corner, or something to that effect?

Ans. I could have so added if it were always true; not be-
413 ing always true, I did not add it. In many cases, particularly where the edges of boots and shoes are burnished by complainant's and defendants' machines, the guard of the burnishing tool frequently fails to have any contact with the outer surface of the sole at that corner. It sometimes happens that where the soles are of uneven thicknesses the guard will touch the outer face of the sole at the sole's thickest point, but nowhere else. An example of such a case is shown in "Exhibit Burnished Edge No. 2."

In some cases where those conditions obtain and the material to be burnished is of a soft or spongy nature a little burr would be likely to show at portions of the edge where the outer portion of the guard did not touch it, but such burr or raised bead is taken off in the succeeding process of finishing the bottom of the sole on the bottom-finishing or sand-papering machines. It rarely occurs in men's work that any burr or bead would be produced under those conditions, owing to the firmer quality of leather used in the soles of such work; but it would be possible by exerting sufficient pressure upwards against the burnishing tool to produce such a burr or bead if the guard did not touch it at the corner, although the pressure required to produce it would scarcely ever be necessary to produce a burnished edge; but it is not a serious trouble so far as it concerns the finishing a boot or shoe, owing to the facilities of removing it in the process of finishing the bottoms of the soles afterwards.

Cross-int. 44. It is impossible obviously, is it not, to burnish such an edge as that, "Exhibit 6, Burnished Edge," unless that surface, which forms rather more than a right angle with the bed or face of the tool, is in firm and close contact with the face of the sole?

Ans. It is, so far as relates to the fore part of the exhibit mentioned, but the shank is burnished with the same tool.

Cross-int. 45. If I understand you, then, you think that the main function of that surface, which is at a little more than a right angle with the bed or face of the tool, is to keep the tool and edge in proper relation one to the other, and that solidifying the corner is of very much less importance. Am I right?

414 Ans. Yes; I think that you are right. That is my opinion, generally speaking. There might be exceptions to it.

Cross-int. 46. Only a very small portion of that surface which stands at a little more than right angles to the bed or face of the

tool ever does any work in practice, as I understand it, except in edges like the fore part of "Exhibit 6, Burnished Edge." Am I right?

Ans. Generally speaking, you are right. It would be an immeasurably small portion, and to illustrate: If a No. 9 iron were used to finish a No. 8 shoe or follow a No. 8 trimming knife, which is commonly the case in practice, you might say that it would be less than an immeasurably small part. This proposition can be proven by comparing "Defendants' Exhibit Tool No. 2" with "Defendants' Exhibit Burnished Edge No. 2."

Cross-int. 47. One thing, however, is certain, isn't it, and that is that either this surface which forms rather more than a right angle with the bed or face of the tool is idle and wholly useless, or else it serves as a guide to keep the tool and edge in proper relation to one another?

Ans. It is not idle nor wholly useless. The contrary is a well-known fact. It does not guide, but merely assists in guiding, the principal guide being the inner lip or rand guide. Particularly is this the case when a bead or finish is desired upon the top surface, near the edge.

(Adjourned.)

BOSTON, *October* 26, 1882.

Cross-int. 48. Your last answer causes me to doubt as to your meaning. I have no doubt that you testified in this deposition that a part of that surface which is at rather more than a right angle with the bed of the tool did mainly the work of guiding the tool and keeping it and its rand lip and bead in proper relation to the edge in hand burnishing tools. Now, isn't this the fact, whether you said so or not before?

Ans. It is not a fact when the tool is provided with a lip or rand guide. It is a fact where the tool is not provided with a lip or rand guide, but where both inside and outside guard are on the
415 same tool the long guard cannot perform any office in guiding the tool, which may be held to be "mainly" or superior to the short one when used by hand.

Cross-int. 49. Tell me, please, what is the function of the acting surface of the guard on hand tool No. 3, and also how much of the surface of the guard in that tool you think does any work, supposing no part of the face of the sole to be blacked.

Ans. "Exhibit Hand Tool No. 3" being for a square edge, there may be and there may not be an acting surface on the guard; unless the edge to be burnished fitted the tool, there would be no acting surface. In two cases of the use of "Exhibit Hand Tool No. 3" there might be an acting surface of the guard. One of those cases would be when the edge to be burnished nearly fitted the tool, in which case its function would be, as I have before stated, an adjunct to the inside lip or rand guide in the process of moving it on the edge. The other case in which it would be an acting surface would be when it was desired to finish what is known as a sunk channel, an example of which is seen in "Exhibit 6, Burnished Edge." In

that case the function of the working surface would be to burnish. Supposing no part of the face of the sole to be blacked, and the thickness of the sole does not exceed the width of the tool, I do not consider that any part of the acting surface of the guard does any work.

Cross-int. 50. You don't think, then, that the guard is of much account in the burnishing tool, except where some part of the face of the sole is to be blacked and burnished, do you, as in "Exhibit 6, Burnished Edge"?

Ans. I don't remember that I have so stated. I think I have explained to the fullest extent of my understanding the utility of the outer guard.

Cross-int. 51. I supposed that one of the main points of your testimony was to corroborate Drake and convince the court that the guard was of no use in a burnishing tool, and that there was no guard necessary or desirable in "Exhibit Hand Tool No. 3," except when used on work like "Exhibit 6, Burnished Edge," and that the guard had been cut off of "Exhibit 6, Burnishing Tool." I
416 will, therefore, ask you, Isn't it certain that the guard is not only useful and desirable in all edge-burnishing and reciprocating tools but essential in a large part of that work, and isn't it also certain that there is a guard on "Exhibits Hand Tool No. 3 and No. 6, Burnishing Tool"?

Ans. I don't know that I should be held responsible for what the counsel has supposed to be the relation between my testimony and Drake's, but I consider the main point of my testimony is to tell the truth, the whole truth, and nothing but the truth as I understand it. I don't think that I have stated anywhere in my testimony anything that will justify the counsel or the court in supposing that I held or now hold the guard of the burnishing tool to be of no value; but I do maintain that for the purpose of burnishing the edge of boot or shoe it is not absolutely necessary if the burnishing iron used be provided with a lip or rand guide. I may here state that I quite agree that it is both useful and essential. With regard to "Exhibit 6, Burnishing Tool," the longer part projecting below the bed may be called a guard, or, for accommodation, I will call it a guard, but calling it a guard does not still alter the fact that there is nothing in the tool but a complete burnishing surface, and in the trade the guard is held to extend always beyond the burnishing surface. There is not a correct relation and analogy between hand tool No. 3 and "Exhibit 6, Burnishing Tool," although the guard in each case is about the same length. The reason why a comparison is not fair in those two exhibits is that "Exhibit Hand Tool No. 3," being for use by hand, can be safely laid upon the edge to be burnished without any risk of damaging that edge by the sharp edge of the lip or rand guide. "Defendants' Exhibit 6, Burnishing Tool," being made for use in a machine, would require and ought to have a much longer guard, it being a part of its function to act as a guide when the operator first presents the edge of the shoe to the burnishing tool.

Cross-int. 52. In the Ingalls tool and in all tools where the tool is presented to the edge (in distinction from presenting the edge to the

tool) and where the tool has no rand lip, the guard is the only practical means for keeping the tool and edge in proper relation, isn't it?

Ans. I should say it is.

417 Cross-int. 53. And why do you think that the guard is usually made so very much larger than the rand lip?

Ans. I have stated already why I think it should be made so very much larger in tools to be used in machines. In the case of hand tools I don't think anything about it. It appears to be a matter of habit or custom. I think that the last part of my last answer answers that question.

Cross-int. 54. What was your object in producing "Exhibit 7, Burnished Edge," and "Exhibit 7, Burnishing Tool"? I supposed it to be to show that the guard is of no use in a burnishing tool until you corrected me in your answer to interrogatory 51.

Ans. My object in producing it was not to show that the guard is of no use, but to show and to prove that the edge of a boot or shoe could be burnished without the intervention or use of what counsel calls a rest for the face of the sole.

Cross-int. 55. What is that slight groove across "Exhibit Tool No. 2," at the junction of the guard and bed, commonly called, so far as you know, and what work does it do, and wasn't there one just like it on "Exhibit 7, Burnishing Tool," before you filed away a part of the guard?

Ans. The slight groove on "Exhibit Tool No. 2" don't appear to be anything particular. It looks to me to be produced unintentionally by the edge of the file in the process of making the surfaces of the bed and guard. It don't look to be sufficiently large to be intended to produce any result. There is sometimes what is called a sunk bead made at that particular part of the burnishing tool, but the groove in the exhibit is so very small that I don't think it was intended for that purpose. I don't think it would leave a bead sufficiently large to be discerned on the edge of the shoe after it is finished. With regard to "Exhibit No. 7, Burnishing Tool," I filed down the guard myself, and I never noticed, and in fact I am sure, that there was not any groove or depression at that point.

Cross-int. 56. I have always understood that these sunk beads were almost invariably in all fore-part burnishing irons. Please look at "Exhibit Hand Tool No. 3," "Exhibit 6, Burnishing

418 Tool," and the fore-part irons in "Exhibits Complainant's and Defendants' Machine," and state whether you find them there or not.

Ans. In "Exhibit Hand Tool No. 3" I do find a small groove sufficiently large to leave a bead that could be easily seen on the edge of a shoe. In the "Exhibit 6, Burnishing Tool," there is not a sunk bead sufficiently large to produce any effect. The same would apply to the fore-part tools in complainant's and defendants' machines. The very small depressions in these tools were evidently formed, as I have said in my previous answer, by the sharp corner of a file necessary to be used in producing the convex lines of the surfaces which meet at the corner where such mark can be found.

It would be a matter practically impossible to produce lines of similar degrees of convexity to those which obtained in the tools which I have now examined in "Exhibits Complainant's and Defendants' Machine," without leaving such slight groove or depression where it exists, its existence greatly facilitating the workmen in producing the convex lines of the bed and guard.

Cross-int. 57. Then you have not had much, if any, practical experience in cutting irons such as are used in this country, have you?

Ans. I have not had much practical experience.

Cross-int. 58. Won't you admit that there is a guard upon tool No. 1 and upon tools for burnishing round edges—I mean upon all that class of tools where the bed is very narrow, as in tool No. 1, and where the bed and the guard form parts of the same curve, so that it is impossible to tell where the bed ends and the guard begins, and *vice versa;* for example, see diagrams numbered 27 and 30 of "Exhibit Snell Circular."

Ans. I might admit that "Exhibit Tool No. 1" has a guard, and not only that but all similar tools, as well as tools shown in diagrams numbered 27 and 30, but my admission does not make the part referred to a guard, as I have already stated. The guard of a burnishing tool is something distinguishable from the burnishing part. "Exhibit Burnishing Tool No. 1" will burnish on every part of its inner surface, and is purely and simply a burnishing tool. The only part of it that I think can be fairly held to be a guard is the inside lip or rand guide, which was in past times, and is to a
419 great extent at the present time, known to the trade as the inside guard. "Defendants' Exhibit Hand Tool No. 4" is similar to "Exhibit Burnishing Tool No. 1," but hand tool No. 1 possesses a guard, clearly shown and defined beyond the burnishing part of the tool.

Cross-int. 59. On the "Exhibit Snell Circular" are the terms channel guard, bevel guard, safeguard, clipped guard, double guard, straight single guard, medium single guard, common single guard, bevel single guard, medium channel guard, common channel guard, regular bevel guard, round bevel guard, and double round bevel guard. Don't you think these terms are more likely to be right than those you prefer?

Ans. I don't think they are. The terms employed in that circular are terms of convenience between the person or persons issuing this circular and their customers and have sole reference to the various styles of edges made, more particularly the great variety of styles of edges that have been introduced during the last twelve years. By the terms employed in this circular the customer ordering goods can order by reference to those terms, and the style of goods so ordered can be supplied; but to my mind those terms do not appear to have any special reference to the function of any particular part of a burnishing tool, and I would not consider those terms an authority as to whether the part or parts of a burnishing tool which produced a burnished surface was in reality a burnishing tool or something else.

Cross-int. 60. I don't see why it is that you object to the term "guard" when applied to a surface which performs all the functions ever performed by a guard of a burnishing tool when it also performs the function of burnishing. What are your reasons?

Ans. I object to applying the term "guard" to a part of a burnishing tool when it does not act as a guard, when its specific function is to burnish, just as much as the bed or inside lip. I don't object to calling a guard a guard when it is a guard, and that is when it is not called upon to burnish or produce a burnished surface in its operation. What is known as a channel guard, same as "Exhibit 6, Burnished Edge," might be held to be an exception to this last proposition; but, even in the example shown, "Exhibit
420 6, Burnished Edge," there is no guard projecting beyond the line of the finished or burnished surface; therefore, on technical grounds, I could hardly call any part of that a guard.

Cross-int. 61. Now, look at complainant's patent and state whether any one skilled in the art as it was in 1875 could have been in doubt as to use of the longer flange or lip of the tool C.

Ans. I don't think any person skilled in the art at that or at any other time could have the slightest doubt as to its case.

Cross-int. 62. It is obviously and at a glance the familiar guard, as it is often called, isn't it?

Ans. Yes; I should say it is.

Cross-int 63. And I suppose you will agree with me that no workman skilled in the use of hand tools would ever imagine for a moment that it had any different use from that of the corresponding part of the hand tool, except such difference as might arise from the fact that in the complainant's patent the edge was to be pressed against the tool instead of pressing the tool against the edge, as in the use of the hand tool?

Ans. Yes; I think that is obvious.

Cross-int. 64. I suppose also it is clear to you that when a shoe is held up to the tool of the complainant's patent a part of that tool resists the upward pressure and apart of it would also resist any pressure, if there were any, tending to move the shoe toward the standard or head of the machine, assuming that the tool fits the edge and that the edge is held in proper relation to the tool?

Ans. I quite agree that it would resist the upward pressure, but if the other assumptions of the counsel obtain I think it would only partially resist the pressure toward the column or head of the machine. If there were any pressure exerted in that direction it would appear to me to be divided between the guard of the burnishing tool and the piece marked D in the drawings.

Cross-int. 65. You are interested, are you not, quite largely in the manufacture and sale of defendant's machines?

Ans. Somewhat largely.

Cross-int. 66. I think your answer to question 64 contains a manifest error, as it seems to me perfectly clear that it is impossi-
421 ble for any part of the sole to be in contact with the piece D as shown in the drawings of complainant's patent if the edge be properly presented to the tool. Please look at the drawings of

the complainant's patent and explain how it is possible, if you think it is possible, for the edge to be properly presented to the tool while any part of the sole is in contact with piece D.

Ans. It don't appear to me to be so much a question of the proper presentation of the edge of the shoe to the burnishing tool as the angle which the trimmed edge may present to the bed of the burnishing tool in relation to the other parts of the machine. So far as making that point clear, beyond all doubt or question, to the mind of an average skilled workman at the time complainant's patent was drawn the patent appears to be entirely defective. In the reading of the specification the nearest language which I can find having any definite bearing on the point (and this language is not very definite) is where it reads, "The workman passes the edge up against the tool and the face of the sole against the surface which projects below the tool." Upon reference to the drawings I find the tool is marked C, and I see no other surface or part which agrees with the words of the specification just quoted except the face of the piece D. Again, quoting from the specification, "and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by aid of the finger rest D." I think this language would clearly imply, without room for reasonable doubt, that the bottom of the sole of the boot or shoe to be burnished is intended to be steadied in all the parts of its operation or presentation to the burnishing tool by resting or being pressed against the front face of the piece marked D if such resting or pressing was found necessary, which, in my opinion, considering the state of the art at that time, was considered to be the case. Quoting again from the patent, "especially when burnishing the corners of the toes." I take those words to mean that at that particular portion of the sole edge referred to as the corners of the toes its use was found really necessary, and its position in relation to the burnishing tool being such that it could be used for the purpose of steadying the shoe and preventing any movement in the direction of the head or column when the operator con-
422 sidered it necessary to so use it. But, as I stated in the beginning of the answer, the question of whether the bottom of the sole would rest upon or press against the guard of the tool C or the front face of the piece D, or both, would depend entirely upon the angle at which the sole edge may be trimmed. The edges could be trimmed without much deviation from the practice of to-day so that the bottom of the sole would bear upon both the points indicated, or they might be so trimmed, having due regard for thickness of sole and width of burnishing tool, that the edge could be presented to the tool so that its face or botom could only come in contact with the guard at the corner formed by the junction of the guard and bed in the same manner and with the same results as previously obtained when boots or shoes were presented to the action of reciprocating burnishing tools in other machines by hand.

Cross-int. 67. Now, assume that the burnishing part of the tool in complainant's patent is the bed and the rand lip—that is, that the kind of edge to be burnished is the kind shown in "Exhibit 7, Burnished Edge," and that the guard does no burnishing—and tell me

what you think is the fair meaning of these words which I quote from the patent, "The rest which is just below the burnishing part of the tool," and also don't you think it likely that the man who drew that specification, having a square-edged iron before him, thought, in all probability, that the burnishing part of the tool was the bed and rand lip, and that the guard was not a burnishing part of the tool, which is what you appear to me to think from your deposition?

(The inquiry as to the witness' hypothesis of the problematical contents of the obscure writer's mind who drafted the specification objected to as incompetent.)

Ans. In answer to the first part of the question I can do no more than to repeat what I said in my last answer, in which I quoted from the specification of complainant's patent in support of my opinion. As to what the gentleman who drew the specification of complainant's patent may have thought six years ago I am not competent to form an opinion, and with his knowledge of the state of the art at that time it is just possible that he may have known
423 definitely what he thought himself. The part of the burnishing tool which he may have had before him at the time of drawing the specification, if the same as shown in complainant's patent, is, was then, and always has been known as a guard. Counsel appears desirous to know it by another name, namely, a rest for the face of the sole of the boot or shoe; but how a body or thing moving at a velocity of about eighteen hundred times per minute can be fairly and reasonably called a rest is not quite clear to me.

Cross-int. 68. I do not think you have answered the first part of my question. I do think you have evaded it. Please reconsider it.

Ans. I don't understand what is meant by the words quoted, whether the guard of the tool or the face of the piece D, no particular thing having been specified in the question.

Cross-int. 69. Do you agreee with me that the following is a fair way of expressing your interpretation of that part of the specification quoted by you, namely, the workman presses the edge up against the tool and holds the face of the sole against the front face of the finger rest and gradually moves the shoe so as to bring all parts of the edge to the action of the burnishing tool, steadying the shoe against the finger rest D, especially when burnishing the corners of the toes?

Ans. I consider that a fair interpretation of that part of the specification of complainant's patent quoted by me, if qualified as I qualified it at the time I quoted it with regard to the angles at which the edges to be burnished might have been trimmed.

Cross-int. 70. Isn't it perfectly plain that no shoe can be burnished on the machine shown in complainant's patent if any part of the face of the sole be held against the face of the finger rest D, especially when operating upon the corners of the toe?

Ans. It is not perfectly plain; neither is it true in fact. There are thousands, I might say hundreds of thousands, of pairs of boots and shoes made in which, to use a term used in the trade, the edges are

"trimmed under." By "trimmed under" I mean inclining inward and downward from the upper corner of the sole edge. The edges of boots and shoes so trimmed could most assuredly be burnished on the complainant's machine under the conditions contained
424 in the question, which is substantially what I stated before, that the question was to be determined by the angle at which the edges to be burnished may be trimmed.

Cross-int. 71. You and I now begin to differ very widely. Do you really mean to testify that you ever saw a shoe capable of being burnished with the iron shown in complainant's patent, the edge of which could be properly presented to the tool shown in complainant's patent, while the face of the sole was against the finger rest D of complainant's patent—that is to say, isn't it too plain for dispute that the face of the sole must be held away from the finger rest D if the edge be properly presented to the tool shown in complainant's patent, assuming, of course, that the sole fits the tool in the usual way well known in 1875 and long before that?

Ans. I can honestly testify to having seen in my time, in fact within the last ten years, thousands of pairs of boots and shoes that could be so burnished.

(To the last part:) In practice such has been found is the case; but the proper presentation of an edge to the burnishing tool is and always must be determined by the angle at which it is trimmed. One thing, however, is very certain in relation to this, and that is that, with the knowledge of the state of the art possessed by those who constructed the machine shown in complainant's patent, the finger rest D was brought in the close relation to the burnishing tool there shown for some definite purpose, which purpose evidently was found upon a more extensive knowledge of the art not to be necessary. Hence, I should say, the alteration or deviation in practice with regard to the position of that piece from that shown in the drawings of complainant's patent.

Cross-int. 72. You referred in your direct to some trouble with the drawings of the complainant's patent, which I did not then and do not now understand fully. I have no doubt that the relation between the guard and finger rest D as shown in the drawings is exactly the same as that shown in the complainant's machine, making allowances, of course, for the small scale of the drawing. Please explain what you think about this, and state, if you can, what differences there are that you think are material.

425 Ans. I don't think they are the same. I don't think the relationship is proportionately the same. In complainant's machine the position of the hook is considerably nearer the burnishing tool than it is used in practice; I should say a quarter of an inch nearer; but even at that it appears to stand considerably further back from the burnishing tool than the proportionate scale of the drawings would place it. The two views shown in the drawings do not agree, the relationship shown between them in the side elevation shown in the drawings differing as compared with the section about one thirty-second of an inch.

Cross-int. 73. Are you aware that some operators bring the finger rest much nearer to the guard of the burnishing tool than others?

Ans. I am.

Cross-int. 74. Do you know why this is?

Ans. It is sometimes—not generally speaking—a question of convenience. The size of the hand of the operator, coupled with the height of the operator, generally speaking, determines it.

Cross-int. 75. To return to your notion that the patent describes the front face of the finger rest as the rest for the face of the sole, did you ever see anybody burnish a shoe on a machine of the kind described in the patent, keeping the face of the sole against the finger rest? Did you ever hear of its being done, and don't you know that it is physically impossible to be done?

Ans. I have never seen it done. I have heard of its being done when the machine was first being experimented with. I know that it is not a physical impossibility to burnish the edge of a boot or shoe with the devices in the same relation to each other as in complainant's patent, that being entirely determined by the angle of the edge.

Cross-int. 76. Isn't it a physical impossibility beyond all rational dispute, taking into view the angles formed by the lip and guard with the bed of the burnishing tool shown in complainant's patent, to properly present the edge to which that tool is adapted to that tool and yet keep the sole against the finger rest D; and, moreover, wasn't all this perfectly plain to you from inspection of the drawings of complainant's patent?

426 (Objected to, because physical impossibility can never be demonstrated by experience which is merely rational.)

Ans. So far from its being a physical impossibility, it is a very easy thing to accomplish, having a due regard to all the conditions of the question. So far from its being a physical impossibility, I myself would, and am at any time prepared to, receive boots and shoes, which boots and shoes I shall trim, and the edges of which, after being trimmed, I shall burnish on one of complainant's machines constructed according to the view of the machine shown in the side elevation of the drawings shown in complainant's patent; and not only me, but any person reasonably skilled in the art of trimming and burnishing the edges of boots and shoes by machinery can do likewise, the whole matter turning, as I have repeatedly stated in my testimony, upon the angles to which the edges of the shoes to be burnished may be trimmed. The whole question of presentation is one of relative angle of edge to tool, and, that being the case, I cannot understand how counsel can expect me to testify that it is a physical impossibility. If counsel should ask "as the edges of boots and shoes are usually trimmed," then I could agree with him.

(Adjourned.)

BOSTON, *October* 27, 1882.

Cross-int. 77. Your agreement don't go quite far enough. Consider

the matter again, and in particular the angle formed by the acting surface of the rand lip with the bed of the tool shown in the complainant's patent and the angle formed by the guard with the bed, and also that the tool there shown is clearly and beyond all doubt designed for and adapted to use with edges of that general class to which the "Exhibit 7, Burnished Edge," belongs, and see if you can't answer both branches of my question in the affirmative.

Ans. I have long and seriously considered the points raised in the question, and, with the drawings of complainant's patent before me, and with my knowledge of what had been previously done in the process of burnishing the edges of boots and shoes by machines using a reciprocating tool, to the action of which boots and shoes were presented by hand, I cannot answer the question in the affirmative without telling an untruth. So far as the relation of
427 the lip of the tool shown in complainant's patent to the angle of the bed of the tool is concerned, it is obvious to any person having knowledge of edge-setting by machinery that if the edge to be burnished is pressed equally up to the face or the bed of the tool it will not produce a result similar to that seen on the upper surface of the sole to that seen in "Exhibit 7, Burnished Edge." The rand lip shown in the tool in the drawings can produce no effect in burnishing except under two conditions. One of these conditions would be the cutting or chamfering off of a bevel surface on the upper side of the sole edge, somewhat similar to the surface which is made on the opposite side of the sole edge when bevel edges are desired. The other condition necessary to enable it to produce any result in burnishing would be by pitching or tilting the boot or shoe so that the top surface of the sole near the corner would be brought against it, but to do which would remove the edge of the sole from the bed of the tool. The lip or rand guide in the drawings does not appear, and, to my mind, never was intended for actual results in burnishing as shown here, the evident intention being to show a complete burnishing tool—that is, a tool possessing or showing the outlines of lip, bed, and guard. "Exhibit 7, Burnished Edge," is not only beaded on the edge near the top side, but it is also burnished some distance on the top side on what is known in the trade as the rand or feather. The tool shown in the drawings could not leave such burnished surface on the top side of the sole near the edge except under one of the two conditions which I have already mentioned.

Cross-int. 78. I don't think you have given a full and fair answer to my question, so I will put it in detail. First, isn't it perfectly plain that the rand lip shown in complainant's patent is the usual and familiar rand lip; secondly, have you any doubt that it is for its usual and familiar work?

Ans. The rand lip shown in the complainant's patent is evidently the usual and familiar rand lip, and I have no doubt that such rand lip is intended for its usual and familiar work when used in practice, but the angles of the inside or burnishing surface of such lips vary very much in their use, as do- also the length of such lips, and a comparison of such lip on "Exhibits Tool No. 2, Tool No. 7, and
428 Tool No. 1" with the position and angle of the lip as shown

as its proper relation to other parts of the machine for burnishing in the side view elevation marked Fig. 2 of complainant's patent, I think, will show conclusively that my answer or that part of my answer to the previous question relating to such tool will be found to be absolutely correct.

Cross-int. 79. Now, secondly, isn't the bed of the tool shown in complainant's patent the usual and familiar bed for its usual and familiar work?

Ans. Most undoubtedly it is.

Cross-int. 80. And, lastly, isn't the guard shown in the complainant's patent the usual and familiar guard for its usual and familiar work, except as it may be modified by the fact that the edge is presented to the tool instead of the tool to the edge, as in hand burnishing?

Ans. It is the usual and familiar guard, but the reversal of process which is found between presenting the tool to the work, as in burnishing by hand, and presenting the work to the tool, as in complainant's and defendants' machines, is not a modification of the guard.

Cross-int. 81. Now I will repeat cross-question 76, except so far as it includes what you have answered fully and clearly in answer to cross-interrogatories 78, 79, and 80, namely, isn't it physically impossible to present a sole edge adapted to the rand lip and bed and guard shown in the drawings of complainant's patent properly to those parts of that tool and so that each of those parts will do its usual and familiar work and yet keep the sole in contact with the finger rest D; and, moreover, wasn't all this perfectly plain to you from inspection of the drawings of complainant's —?

Ans. I can only repeat what I have previously stated—that, so far from its being a physical impossibility, it is quite possible and easy to accomplish. If there were any rigid lines to be followed in the process of trimming or preparing the edges of shoes to be burnished, it might not be possible to do so, but so long as the edges of boots and shoes are trimmed in such a way as to present varying angles in relation to the surface of the sole such edges must always be
429 presented to the burnishing tool in accordance with the angles to which they are trimmed, that being the only correct rule of presentation to the burnishing tool. (To the last part:) So far from its being perfectly plain to me, it is my opinion that nearly all disinterested persons will agree with the view which I have already testified to as being, to my mind, the correct one. As a matter of fact, I am personally acquainted with quite a number of operators and manufacturers to whom I have shown the drawings of complainant's patent and of whom I have asked the question, what, upon a careful reading of the patent, he considered to be the thing referred to as the rest for the face of the sole. Indeed, I have never met with any one, except those directly interested, either as owners or otherwise, in complainant's machine, who have arrived at a different opinion; and knowing that in other machines using a reciprocating burnishing tool years before the date of complainant's patent, and in which a rest for the face of the sole was provided

apart from the ordinary guard, the obviousness of counsel's proposition becomes entirely obscure.

Cross-int. 82. As I have no doubt that you are manifestly and mathematically wrong in your preceding answer, although of course I may be wrong and you right, I will ask you to take a pencil and paper and draw the profile of the sole, the edge of which you think could be presented to the rand lip, bed, and guard of the tool shown in complainant's patent, so that those parts of that tool would each do its usual and familiar work while the face of the sole is in contact with the finger rest.

(Witness makes a drawing.)

Ans. I have done so, taking a side elevation of the machine shown in the complainant's patent for the purpose, although in the tool shown there the lip or rand guide, as I have previously stated, does not appear to be, and, in my opinion, is not intended to produce any burnishing result. I dwelt on that point before when I called the attention of complainant's counsel to the difference existing between the theoretical lip or rand guide of the drawing and the practical lips of "Defendants' Exhibits Tool No. 1, Tool No. 2," and "Exhibit 7, Burnishing Tool," and as counsel well knows that
the particular form of tool shown in the drawings is only one
430 of many kinds of burnishing tools that can be and are used in
complainant's machine, and every deviation from the tool shown in the direction of round and bevel edges increases the ease or facility with which shoes can be so presented and held against the burnishing tool while the face of the sole touches the front of the piece D.

Cross-int. 83. Do you really believe that the face of the sole near the outer corner of the edge can be held against the guard while the face of the sole lower down is held against the finger rest, and the bed of the edge against the bed of the tool, and the upper bevel surface of the sole against the inclined face of the rand lip, as in the pencil sketch made by you? I put this question because I have no doubt that it is mathematically impossible to keep the rand surface of the sole and the bed of the sole and a portion of the face of the sole in burnishing contact with the rand lip, bed, and guard of the tool, and at the same time keep the tread of the sole in contact with the finger rest, as I think you will readily agree if you consider the different curves of the tread of the sole. Please consider this carefully, because I intend to have proper drawings made to demonstrate my belief of the matter, because I believe it to be a question about which dispute is impossible; and I also consider it to be a matter of considerable importance in this case to show that you, as an experienced operator, must have known from a glance at the drawings of complainant's patent how to present the shoe to the tool, and that the tread of the sole was never and could never be brought in contact with the finger rest D.

Ans. I do believe so; as to the mathematical impossibility or possibility of the matter I know nothing, but I do know that it is a mechanical possibility. If counsel will be kind enough to bear in

mind that the whole question of the presentation of the edge of a boot or shoe to the burnishing tool is one of necessary conditions, which condition must be found in the relative angles of the burnishing surface of the tool to the corresponding angles of the edge to be burnished, I do not understand how he can consider or believe the feat to be impossible. As to what he intends to demonstrate by drawings I do not know. I don't know that for the purposes of this case it is of any importance, as the only species of demonstra-
431 tion which can be satisfactory beyond a doubt would, to my mind, be the actual doing of the work upon a machine constructed and operating in exact accordance with the view of complainant's machine in the side elevation in the drawings of complainant's patent.

If it can be shown by attempt at demonstration with such machine that it is impossible to produce a properly finished burnished edge, in the doing of which all the conditions contained or implied by the question exist and are complied with, I will most willingly admit that all my testimony on that point is wrong.

Cross-int. 84. On examining "Exhibit Ashe Patent 3" it seems to me, first, that there is no finger rest or any equivalent for one in that machine; secondly, that there is no means of locking the tool-holder in place, and, thirdly, that it is impossible for the tool to swivel. Do you agree with me?

Ans. I agree with you that there is no finger rest in this machine. There may be no means for locking the tool-holder in place described in this patent, but a tool is shown possessing means to swivel in its place.

ROBERT ASHE.

Attest: WM. A. COPELAND,
Special Examiner.

(Defendants' counsel offers in evidence file wrapper and contents of patent No. 173,284, being the patent marked in this case "Exhibit Complainant's Patent," and the same is marked "Defendants' Exhibit Helms File Wrapper and Contents, W. A. C., sp'l ex'r.")

432 *Evidence for Defendants.*

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, William A. Copeland, special examiner.

BOSTON, *December* 30, 1882.

Present: J. E. Maynadier, Esq., of counsel for complainant; Thos. Wm. Clarke, Esq., of counsel for defendants.

Second Deposition of Robert Ashe.

Direct examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Int. 1. Some doubt has been thrown upon the feasibility of burnishing a sole edge on the complainant's machine with the face of

the sole in contact with the front surface of the finger rest. If you have made any practical investigations into this matter will you please state what they are and produce illustrations?

Ans. When I testified previously I stated that it was quite practical to burnish edges of boots and shoes upon a machine in which the finger rest and the burnishing tool bear about the same approximate relations to each other as that shown in the drawings of complainant's patent. Since then I have so arranged one of complainant's machines as to cause the finger hook and the burnishing tool to bear relation to each other similar to that shown in complainant's patent, and have burnished shoes upon such machine when so arranged. There is an example of a shoe so burnished (producing a shoe) which shows the mark of pressure against the front surface of the finger rest D. In this example the bottom of the shoe is not finished. It is purposely left so as to show that the burnishing tool performed its work in a good and satisfactory manner.

433 There is another example of a shoe so burnished (producing another shoe). In this example the bottom of the shoe is buffed or finished, which enables the effect of pressure against the front surface of the finger rest D to be more clearly defined than on the example first exhibited. A third example (producing a third shoe) somewhat similar to the second, the only difference being that in the third example the edge of the sole is trimmed a little more under or flowing, as it is sometimes called, than in the first and second examples shown. There also is the iron with which the edges of all three exhibits were burnished.

(Witness produces the iron referred to.)

The result of my investigations being that, as I stated in my previous testimony, it is quite as easy and quite as practical to burnish edges in that way as it is when the finger rest D is removed farther back, as it is in current practice, the whole question being one of the relative angle at which the edges of the boots or shoes may have been trimmed.

To an ordinarily experienced operator it is at first a little awkward to use a machine in that way, owing to their being accustomed to using the machine with the hook removed back, as it is in current practice. But taking a new beginner, it is quite as easy to teach him to operate the machine in that way as in any other. In this connection it is always well to bear in mind that the particular construction of the machine shown in the complainant's patent cannot under any circumstances be practically and successfully used; but the reasons which render them impractical have nothing to do with the question of practicability or possibility of burnishing edges when the face of the sole rests on the front face of the finger rest D.

(The shoes produced by witness are marked "Exhibit Ashe Example 1, W. A. C., sp'l ex'r," "Exhibit Ashe Example 2, W. A. C., sp'l ex'r," "Exhibit Ashe Example 3, W. A. C., sp'l ex'r," and the tool introduced is marked "Exhibit Ashe Tool, W. A. C., sp'l ex'r.")

434 Cross-examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Cross-int. 2. Please look at the drawing now shown you (now put in evidence and marked "Complainant's Exhibit Complainant's Patent Drawing Enlarged, W. A. C., sp'l ex'r") and state whether you think it is what I intended it to be, an enlarged reproduction of a portion of the tool and finger rest shown in complainant's patent, together with the shoe presented, as it naturally would be by an operator of ordinary intelligence.

Ans. I think it is an enlarged production of the section view of complainant's patent shown in the drawings. The two views in the drawing of complainant's patent do not correspond. The relation between the hook and the tool in the enlarged view varies some three-thirty-seconds of an inch from what it would if the enlarged view shown was made from the drawing of complainant's patent shown in side elevation. The sole of the shoe shown in the enlarged view presents a great deal more curvature than is ordinarily found in shoes. I do not think there is any one of the six or seven shoes exhibited that presents anything like the curvature shown. As the shoe shown is trimmed I consider it is properly held to the burnishing tool, but it is trimmed a great deal more crowning than can anywhere be found in ordinary practice.

Cross-int. 3. If I understand your testimony as to these three shoes, "Exhibits Ashe Examples 1, 2, and 3," the only change you made in the machine as it was before you began was to adjust the finger rest far enough out to compel it to strike the tread of the sole when the edge of the sole was in proper relation to the burnishing tool. Am I right?

Ans. The only change I made in the machine was to adjust the hook to such position that the front face of it was coincident with the vertical line of the guard of the burnishing tool. The shoe was then held up to the tool, the sole resting on the front face of the hook, and the edge burnished in the ordinary way.

Cross-int. 4. You now cause me to think that you loosened the set-screw which holds the tang of the finger rest, as the ma-
435 chine is commonly used, and thereby left the finger rest free to move endwise, as it does in defendants' machine. Please state, therefore, whether the finger rest was capable of this endwise motion when you burnished the edges of the three shoes "Exhibits Ashe Examples 1, 2, and 3," or whether it was rigidly held to the frame by a set-screw.

Ans. It was rigidly held to the frame by a set-screw when brought to its position, its bearing in the hole being shortened. I think the bite of the set-screw was very near to the end of the tang. However, its effect was in some slight degree to throw the front end of the hook out of a straight line with the burnishing tool. When in position I marked it so that if it is at any time desirable to witness the operation of burnishing with the face of the sole resting on the end of the hook it can be adjusted as it was when the work was done on the exhibits shown.

Cross-int. 5. Please refer to cross-interrogatory 82 (p. 95 of the printed record) and reproduce the drawing referred to there on one of the figures of the copy of the complainant's patent used as an exhibit in this case, as I find I have mislaid the drawing made at that time.

(Witness does so, and the drawing in pencil is marked with initials of the magistrate at the request of complainant's counsel.)

Cross-int. 6. You never knew a burnishing tool to be used on a sole edge with the rand lip and guard in the same relation to the rand and tread of the sole as shown in your drawing of the shoe in "Exhibit Complainant's Patent," did you?

Ans. No; not precisely as shown, for the reason that the view of the burnishing tool shown in the drawing is incorrect, as may be seen by comparing it with the tools as used in practice. For instance, "Exhibit Ashe Tool." The bed and the guard are approximately correct, but the lip and bed represent nothing that is now used in practice. "Exhibit Ashe Tool" is a correctly made tool, one that has been in use a long time, used in complainant's machine, and "Exhibit Ashe Example 3" is a sample of its work.

ROBERT ASHE.

Attest: WILLIAM A. COPELAND,
Special Examiner.

436 BOSTON, *December* 30, 1882.

Present: J. E. Maynadier, Esq., of counsel for complainant; Thos. Wm. Clarke, Esq., of counsel for defendants.

Deposition of William Edson.

Direct examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Int. 1. State your name, age, residence, and occupation; also what has been your experience in the examination and investigation of the identity and differences of mechanical devices embodied in machinery or illustrated in patents.

Ans. William Edson; fifty; Somerville, Mass.; mechanical engineer and expert in patent causes. For the past thirty years my time has been taken up almost entirely in questions relating to construction and machinery. I have had occasion to make an examination of a great many machines, to draw them and describe them, to compare one machine with another, and to compare descriptions of machinery with the machines. I have acted as mechanical expert in a great many cases during this last twenty years.

Int. 2. Have you examined and do you understand the contrivance described in the complainant's patent for sole-edge burnishing machine and referred to in the claim thereof?

Ans. I have examined it, and believe that I understand the contrivance therein described and referred to in the claim.

Int. 3. Have you examined and do you understand the construc-

tion and operation of the defendants' machine complained of in this case?

Ans. I have examined the same, and believe that I do understand it.

Int. 4. Have you made yourself familiar with the state of the art with regard to machines for trimming and burnishing the edges of shoe soles prior to the year 1876?

Ans. I have.

Int. 5. Please compare the machine "Complainant's Ex-
437 hibit Defendants' Machine" with the machine described in the complainant's patent and referred to in the first claim thereof, stating their resemblances and differences, giving the reasons for any opinion that you may express, having due regard in your answer to the state of the art as it existed prior to the date of complainant's patent.

(Noon recess.)

Ans. I find in the "Complainant's Exhibit Defendants' Machine" and in the machine described in complainant's patent and referred to in the first claim thereof the following elements common to both, namely: They both have a vibrating tool-holder, a burnishing tool, and a rest for assisting the operator in holding the work up to the burnishing tool. The differences in detail are that in the "Exhibit Defendants' Machine" that the tool-holder is reversible, having a contrivance for holding the tool at each end, while in the machine shown in the complainant's patent it has a tool-holder that is not reversible, and is not capable of carrying more than one burnishing tool. The burnishing tools themselves exhibit no more differences one with another than may be found in any ordinary set of burnishing tools adapted to be used in any burnishing machine—that is, the burnishing parts of the tools consist essentially in a rand lip and bed, which are varied to suit the peculiar kind of work to which they may be applied. These variations may be made in any tool to be applied to any burnishing machine, and there is nothing novel, in view of the state of the art previous to 1876, in the shape and arrangement of the said burnishing parts of the tool. The other part of the burnishing tool, namely, the part usually called the guard, is similar in both devices and performs the same function—that is, it may act as a guard and also as a burnisher for the corner formed by the face of the sole and the edge of the sole. The variation in the shape, dimension, and position of this guard is no more in these two machines than is common in any set of burnishing tools; and, in view of the state of the art previous to 1876, I see no feature of novelty over and above the burnishing tools in common use in burnishing machines long previous to 1876. The devices for vibrating the burnishing tool in the two machines are somewhat different in construction. For instance, in the "Exhibit Defendants'
438 Machine" the tool-holder is attached to a bell-crank lever, and is made to vibrate by means of a crank wrist pin and a link which connects said wrist pin to that end of the bell-crank lever which is opposite the end to which the tool-holder is attached.

Thus, when the machine is in operation, the tool-holder is vibrated in the arc of a circle, the centre of which is the fulcrum upon which the bell-crank lever vibrates.

In this case the vibrating tool moves in the arc of a circle inscribed on a plane nearly vertical—that is, in a plane corresponding nearly with the face of the sole of the shoe—while the device shown in "Exhibit Complainant's Patent" consists of a frame-work which moves back and forth in a horizontal plane, its motion being guided by ways which allow it to move in one plane only, namely, horizontal. This motion is obtained by means of a wrist pin on a face plate at the end of the driving shaft, the said wrist pin working in a vertical slot formed in the end of the frame that holds the tool, this slot being vertical, and as long as the diametrical length of movement of the wrist pin allows the said wrist pin to make its circle without causing any vertical movement to the tool-holding frame, yet giving the said frame a sliding movement back and forth, the movement of the tool being in a straight line incribed on a plane nearly vertical. The remaining element common to these two machines consists of a rest located back of and below the burnishing tool. These rests in both machines assist the operator in holding the shoe up to the tool.

The differences between these two rests are principally in shape. In one case, namely, the machine described in complainant's patent, it cannot revolve, while in "Exhibit Defendants' Machine" the rest is free to revolve.

The rest in "Exhibit Complainant's Patent" has a tang which is held in the desired place by means of a set-screw, and is not free in its movements in and out, although it may be adjusted by loosening the set-screw. The rest in "Exhibit Defendants' Machine" has a tang which fits loosely in its socket and has a free longitudinal movement within fixed limits—that is, it may be pushed back a certain distance or be drawn forward to a certain fixed position.

Another difference in these rests is that the rest shown in the
439 complainant's patent cannot be adjusted in relation to the angle between its face and the plane of the sole of the shoe, while the rest in "Exhibit Defendants' Machine" is capable of angular adjustment between the plane of its face and the plane of the sole of the shoe. In view of the state of the art prior to 1876, I find no novelty in the mere use of a rest in connection with the burnishing tool. The novelty, if any, must consist in the peculiarity of the construction and arrangement. My reasons for these opinions are that I find in previously described machines all of the above-mentioned common elements, namely, the tool-holder, the vibrating tool, and the rest.

Int. 6. Please state in what previous patent you find in combination with a burnishing tool substantially such as is shown in the complainant's patent—namely, a tool with a bed and guard, you find described a rest for the face of the sole as distinguished from the guard of the burnishing tool, and state what it is.

Ans. I find such a device described in English patent No. 879, A. D. 1868, granted to Gubault. It is a rest adjustably fastened to

a bracket which is connected to another part of the frame of the machine which contains the vibrating burnisher. This rest for the face of the sole occupies the same relative position with the burnishing tool as the rest in the machine described in complainant's patent.

Int. 7. Please look at the McLaughlin patent now shown you, No. 113,546, dated April 11, 1871, and say whether the specification of that patent illustrates and describes a rest for the face of the sole in combination with a burnishing tool having a guard, and state what the rest for the face of the sole in that patent is.

Ans. In this patent a rest for the face of the sole is shown at K, Fig. 2, and is described in the specification as a rest or platform, K, upon which the bottom of the shoe is rested. This machine has a guard or guide, F and G, which serve to prevent the tool from injuring the upper leather of the shoe.

(The patent referred to is offered in evidence and marked "Defendants' Exhibit McLaughlin Patent, W. A. C., sp'l ex'r.")

Int. 8. Please state whether there was in the art of edge-burnishing and edge-trimming prior to the date of complainant's patent a combination between the burnishing tool or trimming tool
440 having a guard of a finger rest or hook for supporting the finger of the operator in holding the work to the tool. And, if so, in what patent and in what terms is it described?

Ans. I find that such a combination did exist and it is shown in patent to B. J. Tayman, No. 136,790, dated March 11, 1873, described in the following terms: "P is a rest, shown in detail Figs. 4 and 5, which is fastened by means of a screw to the swivel C. The object of this rest is to prevent the cutter F throwing the shoe out of its proper position when short curves of the sole are brought against the cutters. Q is a finger support, seen in detail in Figs. 9 and 10, which is secured to the swivel C by means of screws *g g*. It has on its front end a curved projection, *h*, on which the operator places a finger to steady his hand in holding the shoe and changing its position."

In the patent granted to N. S. Thompson, No. 50856, dated November, 7, 1865, a guide or guard, which is adapted as a rest for the face of the sole and also as a finger rest, is shown in connection with a burnishing tool. This machine I have seen in actual operation, the operating machine being so constructed as to appear very differently from one shown in the drawing, but it had in it the elements marked E, the burnishing tool, the guard and rest marked F, made adjustable and so constructed as to be a practical operating machine. This was used in Rowe & Hadley's shoe manufactory, Stoneham, Mass., in the year 1865.

Int. 9. Please state whether or not in the state of the art as it existed before 1876 edge-trimming and edge-burnishing of soles were or were not performed by the same machine except the working tool.

Ans. They were; and such machines were quite commonly described as edge-trimming and edge-burnishing machines.

Int. 10. Please state whether or not a finger rest performs any different function or has any different use or is of any different service in a machine for burnishing the edges of the soles of boots and shoes from what it has or does in a machine for trimming the edges of soles of boots and shoes.

Ans. In my opinion the finger rest performs precisely the same function and in the same manner in both machines.

441 Int. 11. Would the function or duty or service of the finger rest in an edge-burnishing or edge-trimming machine be modified in case the tool in one machine was a rotary tool and in the other machine was a reciprocating tool?

Ans. It would not.

(Adjourned.)

BOSTON, *January* 1, 1883.

Present: Counsel as before.

Int. 12. Considering the state of the art in 1876 and before with regard to machine-driven burnishing tools, and considering the fact that a hooked finger rest had been employed to aid the operator in presenting the shoe to the action of the tool in the Tayman machine, and considering the fact that in hand-burnishing tools and in machine-burnishing tools it was usual to have a flange on the side of the tool next to the sole, what mechanical novelty would there be in the complainant's machine if you assumed the rest for the face of the sole to be the flange or guard of the burnishing tool, and what mechanical novely would there be in the machine if you assume the rest for the face of the sole to be the front face of the finger hook?

Ans. If we assume that the guard of the burnishing tool forms a rest for the face of the sole, I find no novelty in complainant's machine, from the fact that vibrating burnishing tools provided with a guard arranged to act wholly or in part as a rest for the face of the sole was a common device previous to 1876, and is shown in the English patent No. 879, of 1868, granted to Gubault, and in English patent No. 59, of 1874, granted to A. C. Andrews. In the Gubault patent the guard of the burnishing tool acted in combination with a fixed rest beneath and behind it to assist the operator in presenting the shoe to the machine, while in the Andrews patent the guard of the vibrating tool is the only part that served to assist the operator in presenting the shoe.

If we assume the rest for the face of the sole to be the front face of the finger hook, then there appears to be no novelty, from the fact that the same thing is shown in the "Exhibit Tayman Patent of 1873." There we find the thing called a finger support, it being lettered Q. This finger support in the "Exhibit Tayman Pat-

442 ent" acts as a rest for the face of the sole and also a finger rest. It is true that the Tayman patent does not exhibit a vibrating burnishing tool; but as vibrating burnishing tools were old, even at that time, I do not consider that the mere taking out of a machine one kind of tool and placing in its stead another kind

well known and in common use is sufficient to create a novelty in the machine.

In my opinion, the device shown in the Gubault patent above referred to has all of the elements of the complainant's patent, namely, the vibrating burnishing tool having a guard, a fixed rest for the face of the sole, the back side of which rest could serve, and probably did serve, as a finger rest to aid the operator in holding the shoe in position.

(Counsel for defendant, offers in evidence a copy of the Gubault patent above referred to, and marked "Defendants' Exhibit Gubault Patent, W. A. C., sp'l ex'r," and a copy of the Andrews patent referred to, and marked "Defendants' Exhibit Andrews Patent, W. A. C., sp'l ex'r.")

Cross-examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Cross-int. 13. Please point out in the Gubault patent by figures and letters of reference the parts that you believe to be the same as the burnishing part of the tool in the complainant's patent, and the parts which you believe to be the same as the guard in complainant's patent, and the parts which you believe to be the same as the finger rest in complainant's patent, and also such parts of the specification as you believe describe the same.

Ans. As the figures in the drawings are not lettered, I can only designate them by description. Thus in the drawing on sheet 3 the burnishing tool is shown in section immediately over the words "tool H, full size." In this drawing the burnishing parts of the tool are duplicated; thus at each side is shown a raud guide, and between these rand guide sand the centre of the tool are the two burnishing beds. In the centre of the tool is the guard which acts for either bed. The burnishing tools are described in the specification on the fifth page in the following words: "The tools G
443 H serve, as above stated, for burnishing the side edges, but there are duplicate sets of these tools, so that the workman may employ either one or other of them according to the thickness of the sole to be polished. The tool I is used for shoes which have no heels. The tool J is suitable for polishing some descriptions of soles, and also for polishing heels. Three of these tools are shown to be fixed to the rod which forms the tool-carrier; any other suitable number of tools might, however, be similarly carried. The crank which actuates the tool-carrier makes about one hundred to one hundred and fifty revolutions a minute."

That these burnishing tools, G H I J, vibrate, as plainly stated in the body of the specification, may be understood by reading the 16th, 17th, 18th, 19th, 20th, and 21st lines of page 5. The words are as follows: "These four heated burnishers, which are variously shaped, are of cast iron or steel, and have a rectilinear reciprocating to-and-fro motion imparted to them. This movement is given to them, as shown at Fig. 4, sheet 3, by a small connecting rod, the

head of which is fixed to a movable stud, which is received in a slot in a crank arm fixed on the driving axis."

The modifications of the burnishing tool are shown on the third sheet of the drawings, near the words "tool G, full size," and near the words "tool I, full size." These tools vibrate at the rate of about two hundred to three hundred strokes per minute. See 34th and 35th lines of 5th page. "The crank which actuates the tool-carrier makes about one hundred to one hundred and fifty revolutions a minute."

In regard to the finger rest, I find two kinds of rest shown in the Gubault patent, one of which is shown in connection with an edge-trimmer, and is shown in Fig. 2 of the drawings, sheet 1, marked "elevation" and "section." The rest is spoken of as such, and is described on the 4th page, 7th to 12th lines, in the following words: "This rest is made circular in order to be able readily to turn the boot around the tool. The up-and-down movement is given to this support by a small crank, *c*, on the axis of a screw worm which communicates motion to the axis of a pinion gearing, with a rack on the rest."

444 The other kinds of rest, the one shown in connection with the vibrating burnishers G H I, are shown in Fig. 4 of sheet 3 just below the burnishing tools, but are not lettered. They are shown in elevation and plan, and one of them is shown in end elevation in the drawing marked "section through C D," 3d sheet. These rests are not particularly described in the body of the specification.

(Adjourned.)

BOSTON, *January* 2, 1883.

Present: Counsel as before.

Cross-int. 14. Please point out in the Andrews patent, by figures and letters of reference, the parts that you believe to be the same as the burnishing part of the tool in the complainant's patent, and the parts which you believe to be the same as the guard in complainant's patent, and the parts which you believe to be the same as the finger rest in complainant's patent, and also such parts of the specification as you believe describe the same.

Ans. I find in the Andrews patent of 1874 a vibrating burnishing tool, which is marked 5 in Fig. 1 of sheet 1, where it is shown at half full size. This same tool is shown full size in Figs. 3, 4, and 5 of sheet 2. The burnishing part of the tool is shown in Figs. 4 and 5, and there marked 4*a*. The guard part of the burnishing tool is indicated in Fig. 1, sheet 1, by dotted lines near the numeral 5, and is shown plainly in Figs. 3, 4, and 5 of sheet 2, where it is designated by the numeral 5.

There is no rest for the face of the sole shown in this patent to be used in this connection with a vibrating tool. These parts are described in the following words: "The machinery for finishing the edges of the soles and the edges and chamfers or inclines of the waists of boots and shoes and for burnishing black bottoms is represented in Fig. 1 and parts in Figs. 3, 4, and 5. The said ma-

chinery consists essentially of a series of ironing or smoothing tools, *s t u*, heated by gas or otherwise and actuated by the cams *v w* on the driving shaft *b*. The said cams *v w* have undulating or wave-like faces, and are set on the shaft *b* with respect to one another in the manner which will be understood by an examination of Fig. 1.

x is a reciprocating sliding bar working in the bearings x^2 x^3;
445 2 3 are rollers, carried by the short arms 4 5, adjustable on the sliding bar *x*, and fixed thereon by set-screws. On the rotation of the shaft *b* a reciprocating sliding motion is given to the bar *x* by the action of the cams *v w* on the rollers 2 3. The finishing or burnishing tools *s t u* are carried by the respective levers s^2 t^2 u^2, turning on the centres s^3 t^3 u^3 respectively. The short arm of each of these levers is geared by a pin and slot to the sliding bar *x*, as represented, and by the motion of the said bar *x* a to-and-fro motion is given to the levers s^2 t^2 u^2, which levers work between the positions in which they are represented and the positions indicated by the dotted lines. The burnishing tool *s*, for burnishing or finishing the waist of the boot or shoe, is connected directly with the lever s^2, and in its motion describes a curve about the centre s^3. The burnishing tools *t* and *u* may have a similar motion to that of the tool *s*, or they may have a rectilinear motion. In the latter case the tool-holders are fixed to the slides t^4 u^4 respectively, to which slides motion is given by the levers t^2 u^2. The tool *t* is employed for burnishing the sole and the tool *u* for burnishing the heel of the boot or shoe. The said tools *s t u* are sufficient for finishing or burnishing all the parts of the boot or shoe requiring finishing or burnishing.

"One of the burnishing tools *s t u* is represented detached, of full size, in Figs. 3, 4, and 5, Fig. 3 being a plan, Fig. 4 a side elevation, and Fig. 5 a front elevation; 4 is the burnishing surface and 5 is a lip, guide, or support which the tool has when it is used for operating on the sole or waist of the boot or shoe. The tool for operating on the heel is without the said lip, guide, or support, as shown at *u*, Fig. 1; 6, Figs. 3, 4, and 5, is a guide wheel which enters between the sole or heel and the upper leather. Besides the guide wheel 6, the tool may carry an independent serrated wheel, 7, for making the imitation stitches ordinarily impressed on the 'crease' of the welt.

"Second claim. The construction and combination of the parts of machinery hereinbefore described and illustrated in Figs. 1, 3, 4, and 5 of the accompanying drawings for burnishing or finishing the edges of the soles and heels and the edges or chamfers or in-
446 clines of the waists of boots and shoes, and also for burnishing black bottoms of boots and shoes—that is to say, giving to a series of burnishing tools a recriprocating motion by mechanism constructed and arranged substantially in the manner described and illustrated."

Cross-int. 15. Don't you think that the guard of the Andrews tool is, in fact, a rest for the face of the sole?

Ans. I do; for the reason that it is spoken of as a support or

guide in connection with the description of other forms of the tool which were made for burnishing the heel.

Cross-int. 16. What language do you find in the Gubault patent which you think tends to show that either of the rests or small tables shown, but not lettered, in Figs. 4, 5, and the figure marked "section through C D," on sheet 3, are designed or intended for finger rests?

Ans. There is nothing in the specification that explicitly states that the rests are to be used as finger rests, but the said rests are so formed that one or more of the fingers are at liberty to grasp the rest while the other fingers of the same hand are holding the shoe against the rest. This is plainly indicated in the following words in the 12th–16th lines of page 4: "All these parts being very small, the movement of the rest is extremely gradual, so that the workman whilst holding a shoe against the plate or surface *a b* can with one or two fingers turn the crank *c*, and consequently raise or lower the rest at pleasure without taking away the shoe from the tool C."

Cross-int. 17. Don't you see that that language has no reference whatever to the rests inquired about in the question, but refers only to the rests around the trimming tools?

Ans. Although the rest is only shown and described in detail in connection with the trimming tool, similar rests without the details are shown in connection with the burnishing tools, and are spoken of as rests in the lines 18–24 of page 2 in the following words: "To polish or burnish the edges of the sole suitably shaped burnishing tools are fixed on a bar having a short, reciprocating motion given to it longitudinally by a crank, of which the throw is adjustable. These tools are hollow, and are heated by a gas jet, or otherwise. The boots or shoes are held against a rest or support as they are presented to the burnishing tools." The reason that I have
447 brought in the above quotation in answer to the previous question is that the part that I quoted is the only part that describes the rest for the face of the sole while it is being operated upon, either for trimming or burnishing, and as both operations are performed on the same machine it is fair to suppose that the rest may be used for either operation.

Cross-int. 18. Please compare the drawing now shown you, "Exhibit Complainant's Patent Drawing Enlarged," with the drawings of complainant's patent and state if you see anything to show that it isn't an absolutely fair copy of the parts copied.

Ans. It is a fair copy.

Cross-int. 19. You have never had any experience in burnishing the edges of soles, have you?

Ans. No, sir; I have not.

Cross-int. 20. But in spite of that, and from your large experience as to inventions, patents, and machinery, you feel competent to say, do you not, that the sole edge shown in "Exhibit Complainant's Patent Drawing Enlarged" is properly presented to the tool—that is to say, that it is certain that a sole edge to be burnished with that tool must be presented as shown in that drawing, and that the

mode of presentation there shown is that which would naturally be adopted by any operator of ordinary skill?

Ans. It would be presented in that manner in case the angle between the edge and face of the sole was the same as the angle shown in the drawing. If the sole was more undercut the sole of the shoe would be brought nearer the rest, and if less undercut it would be carried away from the rest—that is, supposing the tool to be unchanged.

Cross-int. 21. Do you know that the guard of the burnishing tool is and always has been invariably made longer—that is, made to project from the bed very much farther than is necessary in theory—so that only a small portion of the inner surface of the guard, namely, that portion lying quite near the bed, is or ever has been used practically in actual contact with the face of the sole? See, for example, Andrews' guard and the guards upon the fore-part irons in complainant's and defendants' machines.

448 Ans. It is not an invariable practice to make them longer than required for actual burnishing surface; but they are, perhaps, more commonly made that way, and in a great many cases the guard cannot be said to act as a burnishing instrument at all, and it is often omitted from the tool altogether and a fixed rest substituted for it. In the tool shown in Andrews' patent and in the two machines referred to the guards are longer than they need to be if they were made for burnishing alone.

Cross-int. 22. I do not believe that you can give an instance of a reciprocating burnishing tool in which the guard was not considerably longer than is necessary for burnishing where the inner surface is used for burnishing, nor do I believe you can give an instance of a reciprocating burnishing tool where the guard was not rigidly fixed to the tool when in use. If you can, please do so.

Ans. The tool shown in "Exhibit Gubault Patent," designated as "tool I, full size," sheet 3, shows a tool in which the guard does not appear to be any longer than is necessary for burnishing. It is too short to be considered to act as a guard.

The tool shown in "Exhibit Gubault Patent" and designated as "tool J, full size," sheet 3, is a vibrating burnishing tool having no guard affixed to it.

Cross-int. 23. The tool you last refer to is a heel-burnisher, not a burnishing tool of the kind in question here. Don't you know that heel-burnishers rarely have a guard and fore-part burnishers always have one? I mean a guard rigidly attached to the tool when in use, and include only reciprocating burnishing tools.

Ans. The tool J above referred to is for heel-burnishing, but the tool I above referred to is for fore-part edge-burnishing and is destitute of any part that may properly be called a guard. The shape and dimensions of the several parts of edge-burnishing tools have been made in almost infinite variety, and I would not want to say that any particular variation had not been made.

Cross-int. 24. Do you know why the inner surface of the guard is made very much longer or made to extend very much farther from the bed than is theoretically necessary, or, to make my question

clear, do you know why the inner surface of the guard is com-
449 monly very much wider than that surface of the face of the sole which comes in contact with the guard in burnishing?

Ans. The reason that this guard is made longer than is necessary for burnishing the face of the sole is that it may assist the workman in his first attempt to bring the shoe into working position—that is, he can place the shoe hastily against the lower part of this guard, then move it more cautiously into the exact position required for working. In case the tool had but a short polishing bead at the point where the guard is usually placed, then the workman would have to be very careful, and consequently very slow, in the operation of presenting the shoe to the burnisher.

Cross-int. 25. Isn't there a better reason than that, namely, that the angle, one side of which is formed by the outer extremity of the inner surface of the guard, would dig into the face of the sole under the pressure required to burnish the edge and thereby greatly injure the shoe?

Ans. I don't think this last reason is so general a one in its application, from the fact that nearly all the burnishing tools have a bed much broader than the thickness of the sole, so that the guard rarely does any work as a burnisher.

Cross-int. 26. You don't know, then, that as a matter of fact all burnishing tools that properly fit the edge to be burnished are cut a shade narrower than the edge in order to allow a slight compacting of the leather?

Ans. I certainly don't know it.

Cross-int. 27. Now, to go back to your answer to cross-interrogatory 21, don't you know that in one class of edges, sometimes called square edges or plain edges, the guard does not act as a burnishing instrument at all?

Ans. Yes; I do.

Cross-int. 28. Now, in this class of edges, do you agree with me that the guard does act as a rest for the face of the sole both in a hand tool and in complainant's and defendants' machines?

Ans. I do not, except at intervals where the thickness of the sole exactly coincides with the bed of the burnisher; then the guard would act as a rest.

450 Cross-int. 29. In the case of bevelled edges and round edges, so called, where a part of the inner surface of the guard is in such firm contact with a part of the face of the sole as to burnish that part of the face of the sole with which it is in contact, I suppose you must agree with me that the guard is a rest for the face of the sole; don't you think so?

Ans. I do.

Cross-int. 30. Don't you know that the burnishing tool is made with a very close and exact correspondence, according to certain very familiar rules, with the trimming tool, and that as a matter of fact all burnishing tools used in complainant's and defendants' machines are made from the trimming tools or from a piece of wood or leather the edge of which has been trimmed with these tools so as to represent exactly the edge of the sole to be burnished, and that very

great nicety and care is requisite to make a satisfactory burnishing tool for any given class of edges?

Ans. I understand that a rough scale changing by forty-eighths of an inch has been adopted by which the tools are made, and thus adapted to fit the thickest part of the sole to which the instrument is applied, so that the tool will fit with some accuracy the thick part of the sole. But the beds are most always much wider than the thickness of the edge at the shank.

Cross-int. 31. And is it your opinion that the same tool is used on the shank as is used on the rest of the fore part of the sole?

Ans. It may be used, and in a great many cases is used.

Cross-int. 32. You did not answer a portion of cross-question 30; I mean as to the correspondence of the burnishing and trimming tools according to certain familiar rules; please do so.

Ans. The trimming and burnishing tools, I understand, are made to correspond with each other.

Cross-int. 33. You know, don't you, that where a proper trimming tool is used all parts of the edge trimmed by it are brought to the same size and shape in cross-section? I mean, of course, with the proper use of ordinary edge-trimmers by persons of competent skill.

Ans. I was not aware of it.

451 Cross-int. 34. Several of the witnesses for the defendants have construed the complainant's patent in a way that strikes me as being little less than absurd, the main absurdity being that the front face of the finger rest is what is meant by the term "rest for the face of the sole" used in that patent. Do you think you see anything in that patent that leads you to think that the term "rest for the face of the sole" means anything else than what is commonly called the "guard" in the tool? If so, please state as clearly as possible all that you see, quoting what language you think principally tends to support your opinion.

(Noon recess.)

Ans. The expression "rest for the face of the sole" used in the first claim, in the absence of any explanation and in connection with the drawings, would be assumed by any person familiar with descriptions of previous burnishing machines to mean the front part of the piece lettered D in Fig. 2 of the drawings of complainant's patent, as similar parts have been called rests in other burnishing machines; and in machines in general the word "rest" is applied to something that is fixed, and the function of which is to assist in holding some other thing still while acting upon or being acted upon by some moving part; and I fail to find anything in any other part of the specification which is inconsistent with this view of the matter. From my knowledge of the working of this class of edge-burnishing machines I can't understand how the term can be properly applied to any part of the burnishing tool unless it be that part called the rand guide, for it is this part of the burnishing tool against which the operator rests the sole while its edge is being burnished. It is not possible to use the guard as a rest unless the edge of the

sole is of a perfectly even thickness all the way around and is especially adapted to the tool. The expression "rest for the face of the sole" does not occur in the body of the specification, except in the last paragraph, it also appearing in the first claims, and it is referred to in the last part of the second paragraph as something "which is just below the burnishing part of the tool." It is referred to again about the middle of the first paragraph of the second column in the following words: "The workman passes the edge up against
452 the tool and the face of the sole against the surface which projects below the tool." From the last two quoted expressions it would be difficult to understand precisely what is meant, since it would be impossible to use the guard as a rest for the face of the sole in ordinary work, since if the sole were pressed against the guard the rand guide would most of the time be injuring the upper.

Cross-int. 35. In your statement as to injuring the upper you assume, do you not, that the tool is too large for the edge to be operated upon—that is, that the tool does not fit the edge; and you also assume, do you not, that in practical use in complainant's and defendants' machines that the tool does not so closely fit that the rand lip and bed are in proper relation to the sole edge only when the face of the sole is in close contact with the guard near the burnishing part of the tool; and, lastly, you limit this assumption to that class of edges commonly called square or plane edges—that is to say, you are well aware that this assumption is incorrect as to round or bevelled edges?

Ans. I assume that the tool is used as it is used in a very large part of all the work required of it. I am aware that there are exceptions to this use of the tool, as in case of round edges and sometimes in bevelled edges, and very likely in some thin-sole square-edge work, but in every case the rand guide must bear against the inner edge of the sole in order to get any kind of a finish.

Cross-int. 36. You believe, if I understand you, that the rand lip is the guide by which the operator is governed in bringing the tool in proper relation to the edge, and that the guard is not that guide?

Ans. I do believe so.

Cross-int. 37. Do you also believe that this is true of hand-burnishing tools and of the tools in the Andrews and Ingalls patent?

Ans. It is true of some hand-burnishing tools, and true probably in regard to the Andrews patent, but it is not true in regard to the tool used in the Ingalls patent, in which case the tool is more like what used to be called an edge stone, its only function being to smooth the edge of the sole and make an even finish between the edge and the face, leaving the rand entirely unfinished, the
453 part of the tool which comes in close proximity to the rand having no bead or sharp corner. This leaves the edge unfinished.

Cross-int. 38. Here are three hand-burnishing tools, "Exhibits Hand Tools Nos. 3, 4, and 5." Will you please explain how you think they are used, particularly as regards the pressure exerted by the

workman and the direction of that pressure as regards the edge of the sole and the face of the sole?

Ans. Taking hand tool No. 3, the workman in using it for burnishing the edge and rand would place the rand guide in the rand and press downward against the edge of the sole and slightly outward so — to give a good burnish to the rand. If any part of the sole should correspond exactly in thickness with the bed of this tool, then the workman would not have to be particular about his lateral pressure, as the tool would guide itself.

In case the workman wished to finish a narrow strip on the face of the sole he would have to so incline the tool that the bed would not rest on the edge at all, in which case he would press the guard hard onto the face of the sole for the purpose of burnishing the narrow strip on the face. In this operation no part of the burnishing tool except the guard comes in contact with any part of the sole.

Tool No. 4 is the tool used for very thin or bevelled-edge soles, and would be used in about the same manner that tool No. 3 is used, except that it could not be used so well for finishing a strip on the face of the sole.

Tool No. 5 is used for round edges; and, as the bed is a groove, the tool may be used with very little regard to lateral pressure, as it will guide itself.

(Adjourned.)

BOSTON, *January* 3, 1883.

Cross-int. 39. Please refer to the last sentence in your fifth answer and to your answers to questions 6, 7, and 8 and state in what patent prior to complainant's you find any rest described, either in terms or otherwise, as a "finger rest" or a part or piece designed to support the hand or fingers of the workman; and state also in what prior patent you think you find a vibrating burnishing tool
454 having a guard fast to it in combination with a rest designed to steady that hand in which the workman holds the shoe.

I put this question because it seems to me perfectly clear that you are wholly wrong as to the Gubault patent and as to the Tayman patent and as to the Thompson patent and as to the McLaughlin patent, more particularly in these respects, namely, that none of these patents except the Tayman even so much as hint at any part or piece designed to steady the workman's hands; and, secondly, that none of them show a machine which can be fairly regarded as substantially the same as the complainant's and defendants' machines.

Ans. I find in the Tayman patent a part marked Q and entitled a "finger support." Its function is clearly and distinctly described and shown to be a thing which some of the fingers of the hand may grasp for the purpose of aiding the hand in holding the shoe up to the tool. In the Thompson patent the thing that I referred to as a thing adapted as a finger rest was movable and adjustable, and was used in practice to my certain knowledge as an aid to the hand in holding the shoe up to the burnishing tool.

The rests described in the Gubault patent are not spoken of as finger rests, but it is distinctly stated in regard to one of them that

the fingers of the same hand that holds the shoe against it may embrace a crank attached to it and forming a part of it for the purpose of adjusting it while the shoe is held up to the tool.

In the McLaughlin patent the rest is not called a finger rest, but is clearly adapted and suitable to be used as such.

In regard to the vibrating burnishing tool having a guard, I find such a tool clearly and fully described in the Gubault patent and in the Andrews patent.

In regard to that part of the question which relates to the similarity of the above-mentioned devices to the complainant's and defendants' machines, I am obliged to say that they are not similar to both of these machines, as that would be an impossibility, the two machines, defendants' and complainant's, being so different from each other that wherein any previous patent agrees with one it necessarily disagrees with the other; for instance, the rest in com-
455 plainant's machine is a fixed rest such as is shown in one kind of rest of the Gubault patent and like the rest shown in the McLaughlin patent, and whereas the defendant's rest is a movable rest such as shown in the adjustable rest described in the Gubault patent—that is, the rest in both of these devices is movable in one direction—that is toward or from the work—by the hand of the operator while the operator is holding the shoe to the work by the same hand. Again, the defendants' and complainant's rests differ in shape, namely, the complainant's machine has a rest in the form of a hook, identical in shape with the rest shown and described in the Tayman patent, while the rest shown in defendants' machine is a button or knob-shape rest, such as is shown in the McLaughlin patent.

Cross-int. 40. Don't you see that what you call a "rest" in the McLaughlin patent is a rand guide, wholly unlike in every particular to the finger rests in complainant's and defendants' machines?

Ans. I do not; it is not a rand guide in any sense, and it is described in these words: "An adjustable rest or platform, K, upon which the bottom of the boot or shoe is rested while the edge of the sole is being trimmed."

Cross-int. 41. Then you didn't mean that the rand guide marked F and G and shown in Figs. 4 and 5 was the equivalent of the finger support, but that the table K was the equivalent for the finger support. Is that correct?

Ans. No; I did not.

Cross-int. 42. Mr. Crisp fell into the error of supposing that the Tayman patent showed the combination of a rotary cutter for trimming sole edges with a finger rest and a rest for the face of the sole, and it seems to me that you have fallen into the same error. Do you think you see in the Tayman patent a rest for the face of the sole in combination with the cutter and finger rest?

Ans. I think I do. The things which perform the function of a rest for the face of the sole consist of the part marked P and of the front face of the part marked Q, the part marked P being called in the specification "a rest," its object being, as stated in the specifica-

tion, "to prevent the cutter F throwing the shoe out of its proper position when short curves of the sole are brought against the
456 cutters." The other part which I consider a rest for the face of the sole is marked Q, and is called a finger support, and in the drawing, Fig. 3, the face of the sole is represented as resting against it.

Cross-int. 43. Have you read the deposition of Mr. Crisp in this case, especially those parts of his deposition which relate to the part called the rest and marked P in the Tayman patent?

Ans. I have not.

Cross-int. 44. Please read cross-interrogatories and answers 35–41, both inclusive (pp. 56, 57), of Crisp's deposition and state whether the end of the part marked P or its lower edge, as it is shown in Fig. 5, is the operative part.

Ans. My view of the matter is this: The part designated as P in Fig. 3 is in that figure wholly below the letter P, its upper line being below the letter P, and as it approaches the frame of the machine it inclines upwards so as to be attached to the frame of the machine on the same place that the part Q is attached by the screw *g*. The view of P in Fig. 3 is in elevation, which elevation is repeated in Fig. 5, and in my opinion one-half of the depth of the end face of the rest P extends below the cutter and forms a rest for the face of the sole.

Cross-int. 45. It seems to me perfectly plain from Figs. 1, 3, 4, and 5 that the rest P extends across the cutter, and that this makes it certain that its end face is not operative as a rest, and also that its edge is operative as a rest for the edge of the sole. Consider the matter and say whether you agree with me or not.

Ans. I don't see any evidence that is conclusive that the piece P extends across the cutter, as in Fig. 1 it is shown in plan, and there is no dotted lines under the cutter to indicate that the piece P passes beyond its inner face. Further, in Fig. 4, as there is no shading on it, it is fair to suppose that the upper face of the outer end is flat. If this is a fact, as shown in Fig. 2, the piece P must stop at the inner face of the cutter, as a part of its end is hidden by the rand guide of the cutter. The fact that the detail, Fig. 4, shows the piece to be slightly longer than the one shown in Fig. 1 I do not think is conclusive, as it is quite common to make details slightly longer than the same piece in place.

457 If I had been called upon to build this machine from these papers I should have made it having the end of this piece P stop at the inner face of the cutter, as is apparent, whether true or not, in Fig. 3.

Cross-int. 46. Look at the reissue of the Tayman patent and state whether there is any doubt from the reissue as to the construction and operation of the rest P.

Ans. There is no doubt whatever.

Cross-int. 47. And it is clear, unless the Patent Office blundered, that the edge of the piece P is a rest for the edge of the sole and that the end face of the piece P is not a rest for the face of the sole, is it not?

Ans. It is.

Cross-int. 48. What is your opinion as to the substantial identity of the defendants' machine with the machines described in complainant's patent, assuming that the combination patented is that of the finger rest with the burnishing tool and its guard?

Ans. In my opinion they are substantially alike.

Cross-int. 49. And you know of no patent prior to complainant's showing this combination, unless it be the Gubault, do you?

Ans. Not as a complete organized machine.

Cross-int. 50. And you know of no patent prior to complainant's showing this combination with the front face of the finger rest set so far back of the guard that the sole when properly applied will not touch the finger rest, as illustrated in "Exhibit Complainant's Patent Drawing Enlarged," do you?

Ans. I do not.

Direct examination resumed:

Int. 51. Do you understand that the "Exhibit Complainant's Patent Drawing Enlarged" purports to represent the finger hook of the full size of a working machine?

Ans. I understand this drawing to be an enlargement of the drawing of complainant's patent enlarged to full size; but the proportion between the tool and the finger hook is not the same in the "Exhibit Drawing" as in "Exhibit Complainant's Machine," the finger hook in the machine being much larger and differently located.

458 Int. 52. It is in testimony that the tool, "Exhibit Ashe Tool," was the one employed in edge-burnishing the "Exhibits Ashe Examples 1, 2, and 3," and I understand that that is the ordinary tool for work of that thickness of sole. Will you please compare the width of bed in this tool—Ashe tool—with the width of bed of the tool shown in complainant's patent drawing enlarged and say whether there is any substantial difference?

Ans. There is no substantial difference.

Int. 53. Can you measure the thickness of leather operated upon in examples 1, 2, and 3 and say what it is?

Ans. I have measured the thickest part of the leather operated upon and find it to be a little more than twelve forty-eighths—ranging from that to very much thinner.

Int. 54. The portion of the shoe represented in complainant's patent drawing enlarged appears to be of about the size formerly in use for that portion of the industrial population held to chattel service in the South. Will you be kind enough to measure, as well as you can, the thickness of the sole leather upon which Mr. Maynadier seems to have suggested the employment of a tool of the width of bed of tool shown in complainant's patent drawing enlarged?

Ans. Eighteen forty-eighths thick.

Int. 55. What is the width of bed of tool to do that work in complainant's patent drawing enlarged?

Ans. Twelve forty-eighths.

Int. 56. What is the width of the bed of Ashe tool?

Ans. Twelve forty-eighths.

Int. 57. Do you know what soles finished with the outer edge thinner than the thickness of the sole are called in the trade?

Ans. They are called bevelled edges.

Int. 58. That is rather a rarer form than the square-edge finish, isn't it?

Ans. It is.

WILLIAM EDSON.

(Defendants close.)

Attest: WILLIAM A. COPELAND,
Special Examiner.

459 *Evidence for Complainant in Reply.*

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, William A. Copeland, special examiner.

BOSTON, *January* 11, 1883.

Present: James E. Maynadier, Esq., of counsel for complainant; Thos. Wm. Clarke, Esq., of counsel for defendants.

Deposition of Charles F. Brown.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 1. What is your name, and have you testified before in this suit?

Ans. Charles F. Brown; I have.

Int. 2. The defendants have taken the depositions of certain witnesses as to the work done by the guard or longer lip of an edge-burnishing tool, and some of them seem to think that such lip is of trifling service. Please consider this matter, and state the reasons for using the guard or longer lip and the wisdom of it.

Ans. A guard on a burnishing tool, whether operated by hand or pressing part of an organized machine, is essential. The object of the guard in all cases is to keep the bed of the tool in its proper relation to the edge of the sole. In the hand tool, which I understand has been used for a very long time, the guard prevents the operator from pressing the rand lip or bed of the tool against the upper, or, in other words, keeps the bed of the tool in its proper relation to the sole edge. The earliest example of a reciprocating burnishing tool is an organized machine of which I am aware
460 is shown in the "Exhibit Ingalls Patent." In this patent the tool has a guard adapted to bear upon the face of the sole and prevent the bed of the tool from coming in contact with the upper. The boot or shoe is supported on a jack in this patent, and the bed of the tool and its guard are held respectively with a yielding pressure against the edge and the face of the sole. In the machine

described in the patent the guard keeps the bed of the tool squarely against the sole edge, the guard causing the tool to turn and thus conform to the rand curves of the sole edge. In the hand tool the handle of the tool turns in or with the operator's hand, while in the "Exhibit Ingalls Patent" the tool is swivelled so as to be capable of turning to conform to the rand curves. The principal functions of the guard on a swivelled tool, which is reciprocated in an organized machine like that shown in "Exhibit Complainant's Machine," may be stated as follows: First, to enable the operator to move the sole edge to its proper position with relation to the bed of the tool at the commencement of the operation; secondly, to keep the edge of the sole from being moved laterally out of its proper relation to the bed of the tools; thirdly, to cause the tool to swivel and thus conform to the rand curves of the sole edge; and, fourthly, to solidify the outer corner of the sole, the guard rubbing upon the outer margin of the face of the sole at the same time that the bed of the tool rubs against the edge of the sole and preventing the formation of a burr at the outer corner of the sole. A guard in any burnishing tool capable of turning to conform to the rand curves performs the functions above described. A large guard is generally used, and is important because it furnishes a long surface projecting from the bed of the tool and aids the operator in placing the edge of the sole against the bed of the tool. The guard should be of such size that its rubbing surface will project from the bed of the tool beyond the part of the face of the sole against which the guard rubs, so that the outer end of the guard will not indent or dig into the face of the sole.

Int. 3. Some of the witnesses for the defendants have expressed the opinion, more or less forcibly and clearly, that the description of the complainant's patent for some reason or other makes it
461 necessary that the relation between the inner slanting surface of the guard or lip of the burnishing tool and the outer surface of the finger rest should be so nicely adjusted that the face of the sole should be in contact with the front face of the finger rest whenever the edge was properly placed up against the burnishing tool. Please explain this matter, and state how the edge must be presented to the burnishing tool in order to burnish the edge, and whether it is physically possible to keep the bed of the edge in burnishing contact with the bed of the tool without determining thereby the position occupied by the face of the sole.

Ans. I see nothing in complainant's patent to warrant the opinion expressed by the witnesses of defendants. The edge of the sole must be held squarely against the bed of the burnishing tool. By this I mean that the line of contact between the bed of the tool and the edge of the sole must extend uninterruptedly across the edge of the sole from one corner thereof to the other. The maintenance of this relation between the sole edge and the bed of the tool requires the face of the sole to be held at different distances from the finger rest as different portions of the sole edge are presented to the bed of the tool. To illustrate, take this "Exhibit Complainant's Patent Drawing Enlarged," in which the toe portion of the sole edge is repre-

sented in contact with the bed of the tool. The inclination of this portion of the sole edge from one corner to the other is in the great majority of soles different from that found at the sides of the sole edge. This difference is such that the face of the sole will be farther from the finger rest when the sole is in the position shown in this exhibit than when a side portion of the sole edge is presented to the bed of the tool. It would therefore be impossible for the face of the sole to be in contact with the finger rest at all times when the sole edge bears properly against the bed of the tool.

Int. 4. In speaking of the guard to the burnisher you seem to me to speak as if the guard were always rigidly attached to or in one piece with the tool. Please state how this is, and refer also in the course of your answer to the "Exhibit Thompson Patent," and also to the Carey patent, number 129,457, and state what sort of tools and guards are shown in those patents.

462 Ans. The guard is not always a part of the tool. In the Thompson patent a rotary burnishing tool, E, is employed, and a guard, F, which is in a separate piece from the tool, and is supported by the frame of the machine.

In the Carey patent two pairs of tools are employed, one pair being on a shaft which is rotated in one direction, and the other pair on a shaft rotated in the opposite direction. A guard, *g*, is employed, which is supported by the frame of the machine, and is, of course, in a separate piece from either of the burnishing tools.

Int. 5. What is the reason for making these guards in the Thompson and Carey patents adjustable?

Ans. To adapt the tools to soles of different thickness.

Int. 6. Is there a rand lip in the tools of either of these patents; if so, which?

Ans. The tool E in the Thompson patent has two peripheral beads or rand lips at its outer end, but the tools in the Carey patent have no rand lips.

Int. 7. I see you call the bead a rand lip by inference. Are not those terms commonly used to mean different things, namely, one a lip overlapping the rand surface of the sole, and the other forming a mark or line upon the edge?

Ans. They are. The outer of the two things which I have called beads or rand lips is the rand lip proper, the other being intended to mark the edge of the sole.

Int. 8. The defendants' witnesses have ignored the clerical or typographical error in the complainant's patent—I mean the word "passes," in the second column of the specification.

Please state what this word should be, giving your reasons, and referring to the file wrapper and contents so far as that may aid you.

Ans. I have no doubt that this word should be "presses," from the fact that the word "passes" conveys no other meaning to my mind than moving past or by a given object or point. In the second line, below the line where the word "passes" occurs, the following words are found: "And gradually moves the shoe so as to

bring all parts of the edge to its action." These words last
463 quoted convey to my mind substantially the same meaning as the word "passes" previously given. The use of the word "passes" in connection with "up against" in the same line makes the sentence meaningless, being a contradiction of terms.

By reference to the file wrapper and contents I find an amendment to the specification, dated January 19, 1876, in which the following is found: "(2.) By inserting immediately after the words 'the workman presses the edge up against the tool' the words 'and the face of the sole against the surface which projects below the tool.'" This proves that the attorney in making the amendment supposed that the original specification on file at the Patent Office contained the words quoted in his amendment, namely, "the workman presses," &c.

(Adjourned.)

BOSTON, *January* 12, 1883.

Int. 9. What is the difference, if any, in substance between an adjustable guard, such as shown in the Thompson patent, for example, and that kind of guard shown in the complainant's patent?

Ans. In the Thompson patent the guard is made in a separate piece from the burnishing tool and is adjustable. The guard does not rub against the face of the sole, because it does not move with the tool. The guard therefore cannot solidify the outer corner of the sole nor prevent the formation of a burr thereon. The guard shown in complainant's patent is in the same piece with the burnishing tool; consequently there is no fissure between the guard and the bed of the tool, and the guard solidifies the outer corner of the sole, prevents the formation of a burr, and causes the tool to swivel. The last-named function is not performed by the guard shown in the Thompson patent.

Int. 10. A good deal of talk has been made in this case about the use of the term "rest for the face of the sole" as descriptive of the guard of a burnishing tool. What is your opinion on this question of phraseology?

Ans. It is perfectly evident to me that the larger lip of the burnishing tool is a rest for the face of the tool. I do not see how its function could be more appropriately described. It may be
464 called a guard, but this seems to me an inappropriate term, because this lip does not act as a guard in the sense in which the word is ordinarily used. It may be called a guide more appropriately, or a flange, but by whatever term it is designated it is always a rest for the face of the sole.

Int. 11. Mr. Edson and Mr. Crisp both seem to think that they find in the Tayman patent, No. 136,790, the combination of a revolving edge-trimmer, a rest for the face of the sole, and a finger rest, and they attempt to make the face of the outer end of the rest P operate as a rest for the face of the sole. What is this rest P, in fact, as described in the Tayman patent, and what is its operative part?

Ans. The rest P is described in the said patent as having for its object to prevent the cutter F throwing the shoe out of its proper

position when short curves of the sole are brought against the cutters. The operative part of the rest P is the under surface connected in Fig. 5 by dotted lines to the letter P. It is a rest for the edge of the sole, and not a rest for the face of the sole. There is nothing like it in either the complainant's or defendants' machine.

Int. 12. What is the function of the finger rest in complainant's and defendants' machines, and how does it differ, if at all, from its function in connection with a rotary tool?

Ans. In complainant's and defendants' machines the function of the finger rest is to aid the operator in keeping the sole edge properly against the bed of the tool by preventing the backward and forward movements of the tool from displacing the operator's hand (and the sole held thereby) in the direction of the movement of the tool when the toe portion of the sole edge is being burnished. In other words, the finger rest enables the operator's hand to resist the rapidly alternating movements of the tool when the leather is acting on the toe. No such function is found in the rest used in connection with a rotary tool, the motion to be resisted being entirely in one direction.

Int. 13. Please compare the burnishing machine described in the Gubault patent with that described in the complainant's patent as to substantial identities and differences.

Ans. The Gubault patent shows a reciprocating tool having
465 a rest for the face of the sole. The tool is rigidly attached to the part that gives it motion, so that it cannot swivel, but is similar in form to that shown in complainant's patent. The frame of the machine supports another rest for the face of the sole, which is independent of the tool, and is adapted to be adjusted to different positions. The last-named rest is a rectangular block, shown in Fig. 4, and the figure marked "section through C D," on sheet 3. It is not described in the patent nor its use explained. Its form and arrangement are such that it cannot be used as a finger rest. The machine described in the Gubault patent is radically different from the machine described in complainant's patent. In the machine described in the Gubault patent the burnishing tool is so arranged that horizontal pressure must be exerted on the sole in presenting its edge to the bed of the tool. In the complainant's patent the bed of the tool is arranged to resist upward pressure on the sole, and this last arrangement enables the operator to present the sole to the bed of the tool much more advantageously than in the machine described in the Gubault patent. The rest for the face of the sole, which is independent of the tool in the Gubault patent, occupies such a relation to the bed of the tool that the face of the sole cannot be variously inclined while its edge is in proper relation to the bed of the tool.

(Adjourned.)

BOSTON, *January* 13, 1883.

Int. 14. Look at the pencil sketch made by Mr. Ashe on one of the drawings of complainant's patent and state whether a shoe sole

can be presented in that way to a burnishing tool, giving your reasons.

Ans. A sole cannot be presented in the way shown in this sketch without causing the entire surface of the side of the guard adjacent to the bed of the tool to bear upon the face of the sole, and dig into and therefore deface the face of the sole at the lower end of the guard. This I think a fatal objection to presenting the sole in the way shown.

Int. 15. Having now examined the state of the art in some
466 detail, please state what you believe to be the main novelty of Helms' invention—that is to say, wherein it differs in substantial and important respects from everything before it, especially the Gubault patent, which seems to me the main reliance of these defendants.

Ans. In complainant's patent, as well as in the Gubault patent, the tool reciprocates and has a guard or rest for the face of the sole, and the sole is held by the hands of the operator while being presented to the tool; in complainant's patent the bed of the tool is arranged so that the operator must press the sole upwardly in presenting its sole to the bed of the tool, while in the Gubault patent the operator must press outwardly or away from his body. This is an important difference. The operator can exert a much harder pressure upwardly than he can outwardly, because in pressing upwardly he can use the muscles of his legs and other parts of his body, which cannot be used to any material extent in pressing outwardly or a wayfrom his body. In the machine shown in complainant's patent the operator can present the sole edge to the bed of the tool and hold it, so presented, with his unaided hands when burnishing the sides of the sole edge; but in burnishing the toe portion it is very difficult to hold the sole edge against the bed of the tool without the aid afforded by the complainant's finger hook D. A fixed rest for the face of the sole is not desirable in a machine having a tool with a guard formed in the same piece with the bed of the tool, but is in fact very objectionable, because it prevents the variations of the inclination of the face of the sole required in conforming the tool with the rand curves of the sole edge. The finger hook of complainant's patent does not act as a rest for the face of the sole. In Gubault's patent there is no such finger hook, and therefore no means for steadying the operator's hand while the toe is being burnished; but there is a fixed block which, if used at all, must be in position to form a support for the face of the sole, while the edge thereof bears against the bed of the tool, and is just as objectionable in the Gubault machine as a fixed rest would be in the complainant's machine. Complainant's patent shows the first instance, so far as I am aware, of a reciprocating tool having a rest for the face of the sole and arranged so that the sole must be moved upwardly in
467 presenting its edge to the bed of the tool, and a finger hook or rest placed so far back of the burnishing tool that it will not act as a rest for the face of the sole, but is adapted to steady the operator's hand.

Int. 16. So far as you know or have any reason to believe, who

was the first to invent this method of burnishing, and how does it compare with any other method of burnishing the edges of soles of boots and shoes?

Ans. Charles H. Helms. This method produces as good results as the old hand method, in which a tool is reciprocated by hand upon the sole edge, but is much more rapid. Prior to the date of complainant's patent a rotary burnishing tool had been arranged to resist upward pressure of the sole edge against the bed of the tool. This machine, "Exhibit Thompson Patent," has no finger rest, and there is no occasion for such a rest, the motion of the tool to be resisted by the operator being entirely in one direction when the tool rotates, so that the operator has no difficulty in keeping all parts of the sole edge properly presented to the bed of the tool.

A rotating tool performs work entirely inferior in quaility to that performed by a reciprocating tool; so that this machine may be considered essentially different from that described in complainant's patent.

Cross-examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Cross-int. 17. Am I right in supposing that you regard the burnishing tool to be made with the bed of the width of the thickness of the sole, so that the guard shall bear on one of the sole surfaces and the rand lip on the other?

Ans. You are.

Cross-int. 18. Have you not observed that the edge keys formerly used for hand-work were employed by the workman frequently without having the guard or the rand lip, one or both, in contact with the horizontal surface of the sole?

Ans. I have not.

Cross-int. 19. How carefully have you observed before being consulted in this case the use of hand tools or edge keys in burnishing the edge of shoe soles?

468

Ans. I have not had occasion to examine such tools since a period perhaps two or three years back, until my connection with this case.

Cross-int. 20. And how carefully did you examine the method of use of hand tools before two or three years back?

Ans. I think I never had occasion to examine them at all.

Cross-int. 21. When you say a large guard is generally used you mean in the machine tools, do you not?

Ans. Yes; but hand tools have been made with guards of various sizes.

Cross-int. 22. When you say "large guard" you refer to the depth or vertical projection or projections at right angles of the guard from the bed, do you not, not to its width in a direction parallel to the bed?

Ans. Yes; I refer to its vertical projection from the bed, the tool being arranged as shown in complainant's patent.

Cross-int. 23. As I understand your statement, the inclination of the edge of the sole to the surface or face of the sole determines the position of the shoe in burnishing with relation to touching or not

touching the front of the finger rest in presenting the shoe to the burnishing tool. Am I correct in this?

Ans. The inclination of the edge of the sole with relation to the face of the sole determines the distance between the face of the sole and the front face of the finger rest, but the face of the sole does not touch the finger rests—that is, in the complainant's machine.

Cross-int. 24. Does the inclination of the edge of the sole to the face of the sole determine the question whether if the edge of the sole be brought to bear evenly and firmly against the bed of the burnishing tool, the face of the sole shall be nearer to or farther from the nearest part of the skin of the finger which lays hold of the finger rest in operating complainant's machine?

Ans. Yes.

Cross-int. 25. And the inclination given to the edge of the sole with regard to the face of the sole is determined by the trim-
469 ming tool and the inclination at which that stands with regard to the face of the sole, isn't it?

Ans. Yes.

Cross-int. 26. And you mean to be understood that it is a physical impossibility to trim the edge of a shoe sole so as to bring the face of the sole in contact with the front face of the finger rest at any considerable portion of the operation of the complainant's machine on the shoe, don't you?

Ans. I suppose an edge might be trimmed so as to bring the face of the sole in contact with the front face of the finger rest at a considerable portion of the operation, but I have never seen such an edge on a sole.

Cross-int. 27. You think, as I understand you, that a fixed hook on which an operator rests his fingers in presenting a shoe to a tool to be burnished, for the purpose of steadying his hand, is a different hook, although of the same shape, same size, same weight, and same material, if the tool operating upon the work, in the same place upon the work and in the same relation to the operator's hand, is a tool which tends to force the hand in one direction only from what the said identical hook would be in the said identical place and with the said identical relation to the part operated upon, if the tool tending to disturb the operator's hand were a tool having a rapid reciprocating movement? Am I right?

Ans. No; if a tool can be imagined tending to force the hand in one direction only and always occupying the same relation to the finger hook that a rapidly reciprocating tool occupies.

Cross-int. 28. And yes, otherwise?

Ans. Yes.

Cross-int. 29. The Gubault patent shows a reciprocating burnishing tool, does it not?

Ans. It does.

Cross-int. 30. This reciprocating burnishing tool of the Gubault patent has a guard, has it not, on the side of the face of the sole when a shoe is presented to it?

Ans. It has a guard on which the face of the sole bears.

470 Cross-int. 31. This guard reciprocates with the other part of the tool, doesn't it?

Ans. It does.

Cross-int. 32. The said patent also describes and illustrates a small circular rest on which the face of the sole is placed for presenting the shoe to the tool, doesn't it?

(Objected to, as the question relates to the edge-trimmer in the Gubault patent and not to the edge-burnisher, and is therefore immaterial even on the cross-examination.)

Ans. Yes; the tool being in this case a rotary trimming tool.

Cross-int. 33. It is described in the Gubault patent, is it not, that this rest can be raised and lowered at the will of the operator by a small crank which is actuated by one or two fingers of the workman?

(Same objection.)

Ans. It is.

Cross-int. 34. Is not this rest small enough or large enough to be grasped by the workman if he should so desire?

Ans. I should call it a crank. It is certainly adapted to be grasped as described in the patent.

The rest *a b*, shown in sheet 1, Fig. 2, can undoubtedly be grasped by the workman if its outer edge is not obstructed by the sole resting upon it.

Direct examination resumed:

Int. 35. Has the Gubault edge-trimmer referred to anything to do with this case, so far as you can see, or has it any of the elements of the complainant's patent?

(Objected to as inquiring into a matter of law.)

Ans. It has not.

Int. 36. I do not understand cross-interrogatories 27 and 28 and your answers to them. Please explain as briefly as possible what you intended by those answers.

Ans. I intended to express the opinion that a tool which rapidly reciprocates cannot always occupy the same relation to a fixed finger hook that a rotary tool would occupy.

471 Cross-examination resumed:

Cross-int. 37. And which did you want to be understood resulted from that fact—that the fixed finger hook was the same hook, or that the fixed finger hook was a different hook?

Ans. I wished to be understood that the function of the hook would be different in one case from its function in the other.

Cross-int. 38. Do you mean by that that in the one case the hook would steady the hand of the operator, and in the other case that it wouldn't steady the hand of the operator; that in the one case it would help the operator to properly present the shoe to the tool, and

in the other case it wouldn't help the operator to properly present the shoe to the tool?

Ans. In the one case the hook would resist the thrust of the tool in both directions. In the other case the hook would resist the thrust of the tool in one direction only.

Cross-int. 39. That is the best answer that you can give to the preceding question, is it?

Ans. Assuming that there is any difficulty in properly presenting the sole to a rotating burnishing tool, the hook would be an assistance in both cases.

CHARLES F. BROWN.

Attest: WILLIAM A. COPELAND,
Special Examiner.

BOSTON, *January* 13, 1883.

Present: J. E. Maynadier, Esq., of counsel for complainant; Thos. Wm. Clarke, Esq., of counsel for defendants.

Second Deposition of Frederick W. Coy.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 1. What is your name, and have you before testified in this case?

Ans. Frederick W. Coy. I have.

Int. 2. What was the state of the art as to burnishing the
472 edges of boots and shoes prior to the Helms invention, and what do you believe to be the main advance in that art made by him?

Ans. The machines for burnishing boots and shoes prior to Helms' invention were of two classes, namely, the rotary machine and the one employing a reciprocating tool. The shoe was presented in both of these machines in two ways, one way being upon a jack, and the other by hand.

The "Exhibit Thompson Patent" is an example of a rotary machine in which the shoe is presented to the burnishing tool by the unaided hand. Another feature in this machine (Thompson patent) is that the shoe is pressed up against the revolving tool.

There are many examples of rotary machines in which the shoe is supported by a jack, and machines which employ reciprocating tools, presenting the shoe either upon a jack or by the unaided hand, are many and various.

In the complainant's patent, which is an example of a reciprocating tool to which the shoe is presented by hand in an upward direction and provided with a finger rest and a rest for the face of the sole, which is a part of the burnishing tool, the functions of the finger rest being to support the hand of the operator as a flexible or sprightly connection from the finger rest through the hand of the operator and shoe to the burnishing tool, as only by this elastic or sprightly connection, together with great experience, is the operator

able to present and properly preserve a bearing against the tool with the edge of the sole while burnishing certain parts of it. These features, namely, the upward pressure of the shoe against the tool and the flexible or sprightly connection between the finger rest and tool through the hand and shoe, are the principal features of Helms' advance in burnishing the edges of boots and shoes.

BOSTON, *January* 15, 1883.

Many inventors have tried to solve the problem of burnishing the edges of boots and shoes by reciprocating burnishing tools which ended in complete failure, for the reason that they could not successfully compete with hand labor either in quality or quantity of work done. This is particularly true in that class of machines
473 shown in the Andrews and Gubault patents. Although they presented the shoe by hand, they are subject to the fatal objection of presenting it in a horizontal direction, and thus depriving the operator of the advantage of an easy way of getting the necessary pressure upon the edge of the sole, and also the advantage of seeing the parts operated upon without assuming an unnatural position of the body, or else removing the shoe from the burnishing tool.

Another fatal objection to the Gubault machines is attempting to present an irregular surface (as the tread of a shoe sole) upon a flat and fixed table and expecting that the operator could in any practical manner present the edge of the sole to the burnishing tool and properly preserve the bearing with the edge of the sole upon the burnishing tool. This defect is clearly shown in the Gubault patent. These defects were clearly understood by Helms when he attempted to solve the problem of edge-setting, which he did by employing a reciprocating tool so arranged that the shoe was presented against the tool by a lift instead of a push, thus giving the operator the best possible position to exercise the muscles of his legs, body, and arms in presenting the shoe to the tool and getting the necessary pressure upon it, and at the same time he has the parts operated upon under his eye without removing the shoe from the tool.

In my opinion the Helms machine is the only one in which a reciprocating tool is employed that has any advantages over the hand burnishing of the edges of the soles of boots and shoes.

Int. 3. Some of the witnesses for the defendants seem to think that the Tayman patent shows a combination of a rotary trimmer with a rest for the face of the sole and a finger rest. Please state whether it shows this combination or not; also what it does show.

Ans. The Tayman patent does not show this combination. The rest P in the Tayman patent, as shown in Figs. 2, 4, and 5, is a rest for the edge of the sole, as is clearly shown by its position in Fig. 2 in relation to the vertical axis of the revolving tool. The finger rest Q is shown in this patent.

Int. 4. How does the function of the finger rest differ, if at all, when used in combination with a rotary tool from what it is when used in combination with a reciprocating tool?

474 Ans. The functions of the finger rest when used in combination with a reciprocating tool are to resist the movement of the tool in both directions, while its functions when used in combination with rotary tools are to resist the movement in one direction only.

Int. 5. Mr. Ashe has made a pencil sketch on "Exhibit Complainant's Patent." Please look at it and state whether a shoe has ever been presented to a reciprocating burnisher, as shown in that sketch, so far as you know, and whether it could be so presented or not.

Ans. The form of burnishing tools now used in reciprocating machines are such as to render it impractical to get a bearing upon the edge of the sole by the burnishing tool, as shown in this sketch, nor is it intended that the face of the sole should have a bearing upon the longer lip of the tool upon the entire surface extending from the bed of the tool in a downward direction, for the reason that if the bearing was as shown in this sketch the face of the sole would be marked or marred by the lower extremity of said longer lip, and would be a serious damage to the face of the sole in the operation of cleaning or buffing the same. It would also be impossible to get the bearing as shown in this sketch while burnishing any considerable part of the edge of the sole because of the varying angles of the edge of the sole in relation to the tread thereof.

Int. 6. Are not the working faces of the tools used in complainant's and defendants' machines the same as those generally in use in hand tools?

Ans. They are.

Int. 7. What is the rule as to the correspondence of the burnishing irons with the edge planes or trimmers? I mean in the outline of their working faces.

Ans. The burnishing tool should be the same in form as the trimming tool, but should be slightly smaller as to size or number by which they are known in the trade.

Int. 8. Look at this drawing ("Exhibit Complainant's Patent Drawing Enlarged") and state whether that correctly shows or not the way the shoe should be presented to the Helms machine, and also whether it correctly represents the way in which a workman would present a hand tool to the shoe.

475 Ans. The drawing referred to shows the correct position of the burnishing tool upon the edge of the sole, whether operated by hand or on the Helms machine.

Int. 9. Mr. Drake says that the burnishing tool is supposed to be so cut that the guard cannot touch the face of the sole, meaning, I suppose, in the tools used in both complainant's and defendants' machines and in hand tools. What is the fact as to this?

Ans. The fact is that a cross-section of a burnishing tool as shown in this sketch ("Exhibit Complainant's Patent Drawing Enlarged") should be a template of the edge required in burnishing with the addition of that part which extends below the edge of that part of the face of the sole which is trimmed and burnished.

Int. 10. You have several times referred to certain mechanical conditions which, in your opinion, make it impossible for the edge

to be in close burnishing contact with the burnishing part of the tool and the face of the sole at the same moment in contact with the front face of the finger rest. Please explain this a little more fully, for example, by supposing that the finger rest of complainant's machine is set so far out that the face of the sole will, as a matter of fact, come in contact with it when a certain portion of the edge is in proper relation to the edge of the tool; assume, of course, that the finger rest cannot slide in and out as the finger rest in defendants' machine does, but is held rigidly in place by a set-screw.

Ans. If the bearings of the sole upon the tool and finger rest are as described in the question, when operating upon the toe of the shoe, the curve of the tread of the sole from toe to heel is such that when the attempt is made to burnish the sides of the sole the curve of the tread of the sole across the shoe, being different from the first curve, would not touch the finger rest if the edge of the sole were kept in burnishing contact with the tool.

Again, if the operation of burnishing were commenced at the side or ball of the shoe with the bearings upon the tool and finger rest, as before described, and the attempt were made to burnish the toe part, the finger rest would be in the way, and you could not get the burnishing contact between the edge and the tool without moving the finger rest backward.

476 This is true for the reason that the curve of the tread of the sole of the shoe is different from toe to heel, or lengthwise of the shoe, than it is at right angles to that line or across the shoe, and where the finger rest is right for one curve it is necessarily wrong for all different curves.

BOSTON, *January* 20, 1883.

Int. 11. Mr. Ashe seems to think that it is a very easy matter to keep the face of the sole of a shoe in contact with the front face of the finger rest in complainant's machine while the edge of the sole is in burnishing contact with the burnishing tool, and he produces "Exhibits Ashe Examples 1, 2, and 3" as examples of shoes so burnished. What is your opinion as to this matter? And state also whether it is a matter of certainty or only a question as to which different views might be well held.

Ans. With the experience that I have had during the last six or seven years with the construction of various kinds of machines for trimming and setting the edges of soles of boots and shoes, and knowing the nature of the material of which such soles are made, it is certain that the edge of a shoe sole cannot be burnished as he describes in these exhibits, for the reasons, first, that the curve of the sole from heel to toe is different from the curve at right angles with that line, or crossway with that line; and, second, that it is impossible to trim the sole so that the angle of the edge would be the same in relation to the face of the sole all the way around; and, third, that the leather of which the sole is composed will compress more in some parts than in others and thus change the bevel in relation to the face of the sole from that which it was trimmed.

"Exhibit Ashe Example No. 2" I have examined very closely to

ascertain how great an error Mr. Ashe fell into when he attempted the impossible feat of burnishing the edge of the sole of a shoe and at the same time keep the face of the sole in contact with the finger rest of the complainant's machine.

For this purpose I have made an instrument which gives the lines of the burnishing tool, and at the same time there is an adjustable piece attached which will come in contact with the face of the sole when applied to the shoe in the same place that the finger
477 rest was supposed to have touched at the same moment that the burnishing was done upon the edge. By applying this instrument to the edge of the sole in question, although it may be so near that with the burnishing tool and finger rest of the machine it would be very difficult to detect the variations, yet it is very clearly shown with this instrument or template that such a variation exists as to make it impossible to keep the burnishing contact between the burnishing tool and sole edge and at the same time have the face of the sole touching the finger rest even upon this shoe—" Exhibit Ashe Example 2 "—which was probably trimmed with great care for the purpose of doing so.

(The instrument referred to is now put in evidence and marked " Complainant's Exhibit Coy Template, W. A. C., sp'l ex'r.") .

Int. 12. Do you see how any intelligent man can doubt that every point in the curved face of the sole must necessarily have its position determined whenever any part of the edge of the sole is pressed up into burnishing contact with the tool in either the complainant's or defendants' machine?

Ans. I do not see how they can doubt it.

Int. 13. If you should burnish an edge on defendants' machine, presenting the edge, of course, properly to the tool, but doing all you could to keep the face of the finger rest in contact with the face of the sole, what movement would the finger rest necessarily have?

Ans. It would have a movement to and from the pedestal of the machine.

BOSTON, *January* 22, 1883.

Cross-examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Cross-int. 14. Did you ever see a machine constructed according to either the Andrews or Gubault patent; and, if so, which?

Ans. No; I never saw a machine constructed according to either patent.

Cross-int. 15. Then what you say about them and their practical defects you say theoretically, don't you?

478 Ans. Yes; it is said theoretically, after studying the drawings and specifications and comparing them with other machines for the same purpose, of which I have a practical knowledge.

Cross-int. 16. Is the edge-burnishing done by the Helms machine any better work than good hand work?

Ans. No; I don't think it is.

Cross-int. 17. Then the advantage of using the Helms machine for burnishing instead of doing the work by hand is in the increased quantity of good work that can be done at the same price, isn't it?

Ans. It is the increased quantity of good work that can be done for the same price, and at the same time the Helms machine is capable of doing a superior class of work on a cheaper grade of goods than they could get by hand (for the price paid by hand) and at a less cost.

Cross-int. 18, Disregarding for the present the cost of hand work on an inferior class of goods, do you mean that on this inferior class of goods it is impossible to get good work by hand or that it costs more than it comes to?

Ans. As I am not an edge-setter by profession, I think any answer that I might give in that particular will be founded more upon observation or hearsay than upon any practical knowledge that I have of the matter; but I do not think it is impossible to get a good edge either by hand or with the machine if sufficient price is paid to secure competent operators.

Cross-int. 19. Do I understand you correctly in believing that it is your opinion that what we have called the guard of the burnishing tool is only to be considered a rest for the face of the sole at or about its angle with what we have called the bed of the tool, and not in its whole projection outward from the bed?

Ans. You do not understand me correctly.

Cross-int. 20. Then it is to be considered a rest for the face of the sole in all its projection outward or downward from the bed, is it?

Ans. At certain times it is used as a rest for the face of the sole in all, or nearly all, of its projection from the bed of the tool, as I understand it.

479 Cross-int. 21. Then when Mr. Ashe made his drawing on "Exhibit Complainant's Patent," which you criticised, which drawing shows the face of the sole resting against the guard, he made a correct representation of those "certain times," didn't he?

Ans. No; he did not.

Cross-int. 22. Will you please explain how it is possible for the bed of the tool to press hard against the edge of the sole and conform to it and the face of the sole to rest against the guard the entire depth of the guard and not substantially resemble Mr. Ashe's sketch on "Exhibit Complainant's Patent"?

Ans. If the edge of the sole is trimmed, as shown in this sketch, in its relation to the tread of the sole and the tread of the sole is flat on that portion of it which comes in contact with the longer lip or guard of the tool, as shown in the sketch, they certainly will come in contact, as shown on all parts of the edge of the sole so trimmed and formed.

Cross-int. 23. Now, take the "Complainant's Exhibit Complainant's Patent Drawing Enlarged," which you have said shows the correct position of the burnishing tool upon the edge of the sole, whether operated by hand or on the Helms machine, and tell me

whether that, in your judgment, represents the face of the sole in contact with the guard throughout the entire depth of the guard.

Ans. It does not.

Cross-int. 24. Then in the correct position of the burnishing tool upon the edge of the sole the rest for the face of the sole is that part of the guard and only that part of the guard which is nearest to the bed of the tool, isn't it, and does not include the whole depth of the guard?

Ans. In this particular example, "Complainant's Exhibit Complainant's Patent Drawing Enlarged," the rest for the face of the sole extends about half way from the bed of the tool to the lower end of the lip or guard; but this contact of the guard or rest for the face of the sole may be increased or diminished in extent according to the variations of the thickness of the sole in any particular shoe, but it should be in contact with the face of the sole sufficiently
480 to prevent the turning over of the corner in the operation of burnishing, and thus solidifying that corner of the sole.

Cross-int. 25. In the example given in the exhibit just referred to the sole is represented as trimmed to a bevel on the upper and lower surface, isn't it?

Ans. There is a bevel shown on the upper and lower surface; the one shown on the lower surface or face of the sole is sometimes made by trimming; at other times that bevel may be made to a greater or less extent by the burnishing tool.

Cross-int. 26. Should you think that the width of the bed of tool in that exhibit, as compared with the thickness of sole represented, was a fair or ordinary representation of the proper size of tool to be used on such a thickness of sole unless the edge were first trimmed to a bevel?

Ans. I think that if the sole of the shoe was uniformly of that thicknsss that the tool shown is too narrow upon the bed, but if the thickness of the sole varied, as is generally the case, although the bevel would not show as much at the thinner part of the sole as in the exhibit, yet it would on the thicker parts, although the bevel were not made by the trimming tool. In other words, the varying thickness of the sole shows a varying depth of bevel on the outer corner or face of the sole when properly burnished by a tool, as shown in this exhibit.

Cross-int. 27. If the bevel were made by a trimming tool would it be customary to black it or dress it before submitting it to the burnisher?

Ans. If the bevel were made all the way around the sole, as is often the case—and is then called, I think, a bevelled edge—it would then be necessary to black it before it is burnished.

Cross-int. 28. But the cut surface of the bevel on the face of the sole would be customarily left unblacked if the bevel did not extend all the way around, would it?

Ans. If it did not extend all or nearly all the way around, but simply took off a little piece in one or more spots and was not a bevelled edge, I do not think it would be blacked before burnishing,

and my reason for thinking so is that in the operation of
481 buffing or finishing the bottom the burnished part on the face of the sole would be destroyed if the corner were not bevelled in relation to the face of the sole.

Cross-int. 29. You wish to be understood, then, do you, that on such a sole as is represented on "Complainant's Exhibit Complainant's Drawing Enlarged" the bevel represented as extending from shank to toe would not be cut along the sole from shank to toe, would not be blacked, and would not be burnished by such tool as is there represented?

Ans. I don't mean to be understood in that way, but that it might or might not be so trimmed, blacked, and burnished at the operator's will or taste.

Cross-int. 30. You mean to be understood, do you, that it would be far more unusual for an operator to trim or black or burnish such a bevel in order to employ or in employing a tool with such a width of bed as shown in the drawing than it would be to practice either of said three things?

Ans. I mean to be understood and have before stated that the bevel on the tread corner of the edge of the sole may be made by the trimming tool on all parts of the edge, from ball to ball, and would then be called, I think, a bevelled or fair edge. The degree of that bevel on different parts of the sole would depend upon the varying thickness of the stock employed in making it. I also wish to be understood as saying that the same corner may be bevelled to a less extent, perhaps, by the burnishing tool without being previously bevelled by the trimming tool; and in this case—namely, the bevelling by the burnishing tool—the extent of the surface so bevelled will depend upon the varying thickness of the sole and also the solidity of the stock of which it is composed.

Cross-int. 31. That answer isn't near enough related to the question for one of them to catch any contagious disease from the other. As I have no doubt it is my fault in putting the question, I will put it again. In getting such a bevel on a sole of the thickness of sole shown in the exhibit when the operator was to use it upon a burnishing tool of the width of bed shown in the exhibit, which do
you want to be understood would be the most usual way of
482 preparing the sole for that bevel—to cut it square and make the bevel by the burnishing tool or to cut it with the bevel in the first instance? The question relates entirely to a sole of that thickness of sole, a tool of that size of tool, and a bevel of that amount.

Ans. All the surroundings being the same as described in your last question, it is evident that the design of the workman was to make a bevelled edge. In that case the bevel would be made by cutting and not by burnishing.

Cross-int. 32. Such being the design of the workman, the part cut away from the face of the sole would be blacked or dressed and burnished, would it not, if finished in the ordinary way?

Ans. It would.

Cross-int. 33. And the burnishing on the face of the sole would

be effected by that part of the guard in contact with the face of the sole, would it not?

Ans. It would.

Cross-int. 34. Now, please point on that exhibit to the part of the guard which doesn't burnish and against which the face of the sole rests.

Ans. There is no such part that doesn't burnish that comes in contact with the face of the sole.

(Noon recess.)

Cross-int. 35. When a shoe is burnished the leather is somewhat compressible, is it not?

Ans. Yes; it is more or less compressible.

Cross-int. 36. After the shoe is removed from the tool does not the compressed leather at times and in places go back somewhat towards its original position?

Ans. I think it does.

Cross-int. 37. So that the edge of a shoe after drying and hardening is not exactly as it came from the burnishing tool, is it?

Ans. I think it is not.

Cross-int. 38. Do you see how any intelligent man can doubt that every point in the curved face of the sole must necessarily have its position determined by the cut of the edge and the position in which such edge is presented to the burnishing tool?

483 Ans. I can see how any intelligent man can doubt that the position of the burnishing tool and trimming tool will be different in relation to the tread of the sole in the operation of trimming and burnishing, for the reason that if the edge of the sole is trimmed by a trimming tool held in a certain relation to the tread of the sole that it does not necessarily follow that the burnishing tool will bear the same relation to the tread of the sole in position that the trimming tool did because of the uneven and varying density of the stock of which the sole is made. This is particularly the case in a shoe which has two soles—an outer and inner sole.

Cross-int. 39. Then which is it that doesn't have anything to do with determining the position of the points in the curved face of the sole while burnishing; is it the form of cut of the edge or the manner of presenting that edge to the burnishing tool?

Ans. The cut of the edge determines it in a general way, but the burnishing tool may vary it either in one direction or the other as the density or solidity of the stock may require in getting a properly burnished surface.

Cross-int. 40. You mean by that, don't you, that in pressing an edge up to a burnishing tool when there is a flexible or sprightly connection between the finger rest and the tool through the hand and shoe that the differences of compressibility between the upper and lower sides of the sole will vary the angle or rake of edge in finished work from what it was before applied to the burnisher?

Ans. That is what I mean—whether the flexible or sprightly connection is used or not.

Cross-int. 41. Now, let us suppose that the shoe followed in a fixed

path and that sufficient pressure was applied to burnish the most compressible parts of the sole and also to compress to the same level the least compressible parts of the sole; as I understand you, you think that the angle or rake of the edge of the sole would necessarily be changed from what it was when cut.

Ans. The angle of the edge of the sole in the case cited in the last question could not be changed; neither would the edge be properly burnished, in my opinion.

Cross-int. 42. Which part of it would not be properly bur-
484 nished—the part that was compressed too much or the part that was compressed just enough?

Ans. The part that was compressed too much.

Cross-int. 43. Now, as this is a practical question, how much difference do you suppose it is common to vary the angle or rake of the edge of the sole by reason of this difference in compressibility from the angle or rake at which the trimming tool left it, supposing, as an example, a sole three-eighths of an inch thick trimmed with a square edge?

Ans. In answering that question I refer more to my experience in trimming than any experience I may have in burnishing the edges of soles, and with such experience I should think the variation would be, in an extreme case of variability of the stock, about one thirty-second of an inch for a sole of the thickness cited in the question. This might not occur on all parts of the edge of the sole, but only in portions of it.

Cross-int. 44. Now, in such an extreme case as that, with the sole so uneven in texture, the edge of the sole would, if well burnished, so far as shine is concerned, present irregularities in shape, wouldn't it, or appear to have a wavy or scalloped edge?

Ans. No; it would not necessarily. That irregularity might occur only on one side of the shoe and would gradually go from the solid to the soft in so easy a manner that although the bevel of the edge would be different, yet it would not show a wavy surface.

Cross-int. 45. Even if it did behave in that way the result would be an irregularity in the shape of the sole, wouldn't it, the edge coming rather too far in at the softest points?

Ans. There would be an irregularity in the bevel of the edge of the sole, which of course is an irregularity in the shape of the sole, but so far as "coming too far in" is concerned, I don't exactly understand in what relation the term "in" is used.

Cross-int. 46. Do you understand that the defendants' machine is used with the front face of the finger rest in contact with the face of the sole?

485 Ans. I understand that a part or all of the front face of the finger rest is in contact with the face of the sole as the various curvatures of the face of the sole will determine.

Cross-int. 47. Please inform me from whence you derived that understanding.

Ans. From my limited knowledge of geometry.

Cross-int. 48. You are not, then, aware that the testimony in this

case is that the front face of the finger rest in defendants' machine is never used in that way, are you?

Ans. I am not aware of such testimony.

Cross-int. 49. Had you been aware of such testimony you would have preferred the understanding derived from geometry rather than the testimony offered by experience, wouldn't you?

Ans. The reason for concluding that the finger rest in defendants' machine is intended to rest upon the face of the sole with its entire surface or in part is from the shape given to the end of the finger rest, and the movements of which it is capable to and from the column of the machine, and the remarks of certain operators in that particular.

(Motion by defendants' counsel to strike out "the remarks of certain operators" as hearsay.)

Cross-int. 50. Now, if the pin which confines the finger rest in defendants' machine from forward movement were inserted considerably nearer to the disc or cup which forms the front end, your reasons, derived from the movements of which it, the finger rest, is capable, would disappear, wouldn't they?

Ans. If the pin referred to were moved sufficiently in the direction described and so keep the disc or cup which forms the end of the finger rest so near the column that it would be impossible to rest the shoe against it during the operation of burnishing, I, in my examination of defendants' machine, would certainly have not come to that conclusion.

Cross-int. 51. If the operators had discovered by experience that it was best not to rest the face of the sole on the front face of the finger rest in defendants' machine and didn't do it, notwithstanding the capability of forward movement of the finger rest, you would still consider, on geometrical reasons, that the intent of the
486 constructor of the machine was that the face of the sole should rest against the front of the finger rest, shouldn't you?

Ans. Leaving out of the question the operator's pleasure in the matter, I think, by the form of the finger rest and its movement, that were I about to construct a machine with the intention of having a finger rest come in contact with the face of the sole in the operation of burnishing, that I would have constructed it generally as defendants' machine is in that particular.

My limited geometry teaches me that the extent of the bearing of the finger rest upon the face of the sole would be determined by the varying curvatures of the face of the sole of the shoe and the bevel of the edge. Therefore I think that it was the intention of the designer to have the finger rest come in contact with the face of the sole.

Cross-int. 52. Now, as the intention of the designer has nothing to do with the question of the way in which the machine is used, and as the only evidence in the case as to the relations of the face of the sole with the front face of the finger rest when the machine is in use is that of Mr. Drake, who says, in answer to the question, "Does the face of the sole touch against the front face of the hand rest?"

"No, sir," do you still think that the front face of the hand rest is used as a rest for the face of the sole?

Ans. I still think that it can be used for such rest if the operator so desires, Mr. Drake to the contrary notwithstanding.

Cross-int. 53. Hug my question a little closer, if you please, and tell me if you think it is so used.

Ans. I think it is in some cases. My reasons for thinking so are from a conversation I heard between two operators, at which I was a willing listener, when he claimed that the finger rest was used in contact with the face of the sole and that he so used it, while the other claimed that he could get better results by not having the two in contact.

(Motion to strike out the hearsay.)

(Adjourned.)

487 BOSTON, *January* 30, 1883.

Direct examination resumed:

Int. 54. If the front face of the finger rest or any part of it be kept in contact with the face of the sole in the use of defendants' machine, state how important it is that the finger rest be so mounted as to be capable of moving readily towards and from the column of the machine.

Ans. That movement is absolutely indispensable in that case.

Int. 55. Otherwise how important is that movement?

Ans. It is not then important whether it can move in or out or not, except for adjustment, of course, as in complainant's machine.

Int. 56. Is there any movement of the finger rest in and out shown in complainant's patent? If so, what is the importance of such movement?

Ans. There is; for adjustment only. This also makes it certain that it was not the intent of the constructor that the face of the sole should come in contact with the front of the finger rest, for had that been his intent the finger rest would certainly have had a sliding movement, as it has in defendants' machine.

Int. 57. The cross-examination has been directed in some measure to the dividing line between the burnishing part of the guard and that part of the guard which doesn't burnish. Please look at the complainant's patent and state what part of the guard shown there is the rest for the face of the sole, and also explain this matter as to all three classes of edges, namely, square, bevelled, and half round.

BOSTON, *February* 1, 1883.

Ans. In the Helms patent the tool shown is a square-edge burnishing tool, and has a lip, a bed, and a guard. The lip is that part which rests in and follows the rand. Its functions are to solidify the rand corner of the edge, that corner of the edge next the upper, and in most cases to burnish that corner, although sometimes the lip does very little burnishing.

The bed of the tool is that part of the tool which burnishes the bed

of the edge. In the tool shown in the Helms patent the bed
488 is the surface joining the inner surface of the lip and the inner surface of the guard.

The guard is that part of the tool which rests against the face of the sole in hand-burnishing tools and against which the face of the sole rests in the Helms patent, and the extent of its functions depends upon the design of the edge.

Its first function in the operation of the machine shown in the Helms patent is to aid the operator in presenting the edge properly to the tool. This function is always performed by the guard in all edge-burnishing tools, both hand and machine, and in all designs of edges.

Its second function in the machine of the Helms patent is to resist the pressure of the operator from him or in a direction towards the column of the machine, and thereby aid the operator in keeping the edge properly presented to the tool.

The result is that the edge is properly presented and kept in proper relation to the tool. The outer or tread corner in square edges is kept from being displaced or crushed down by the upward pressure of the edge against the tool, or the downward pressure of the tool against the edge in hand burnishing, and this corner is solidified and made firm and well defined.

Both these functions are performed in full in all square-edge and bevel-edge work, and also in all round-edge work, except that there is no outer or tread corner in round-edge work, but this amounts to the same thing in substance.

The guard performs one additional function in bevel and half-round edges from what it does in square edges, namely, a portion of its inner surface not only performs all the functions of a guard, but also burnishes.

In short, the guard of the tool aids the operator in properly presenting the edge to the tool, in keeping the edge properly presented to the tool, and prevents the edge from being defaced or squatted out by the pressure, and may or may not burnish a portion of the face of the sole, that depending upon the design of the edge.

As to distinguishing between the bed and the guard that is plain in the tool shown in the Helms patent, where it is obvious
489 that the inner face of the lip and the bed are the only burnishing parts of the tool—that is, where the tool is used with the square edge, for which it is designed. If used with a slightly bevelled edge, as indicated in "Exhibit Complainant's Patent Drawing Enlarged," then a small part of the inner surface of the guard will burnish the narrow bevel of the edge, in addition to all its other work, when used with the square edge. In the case of the half round edge the guard is obviously all that part of the tool which prevents the shoe, when the sole edge is pressed up against the tool, from being moved nearer to the column of the machine. I really mean that this is true in all kinds of edges; but that in all square and bevel edges that I ever saw the boundary between the bed and guard is an angle,

making it easy to see where the guard begins, while in half-round edges it is difficult to see exactly where the guard begins.

FRED'K W. COY.

Attest: WILLIAM A. COPELAND,
Special Examiner.

BOSTON, *January* 15, 1883.

Present: J. E. Maynadier, Esq., of counsel for complainant; Thos. Wm. Clarke, Esq., of counsel for defendants.

Deposition of William Gordon.

Direct examination by J. E. MAYNADIER, Esq., of counsel for complainant:

Int. 1. What is your name, and have you before testified in this case?

Ans. William Gordon. I have.

Int. 2. Do you know Spencer L. Drake; if so, how long have you known him, and under what circumstances did you become acquainted with him?

Ans. I do. I became acquainted with him in 1876. I instructed him how to operate a Union edge-setter at B. F. Spinney & Co.'s place, at Lynn.

490 Int. 3. Mr. Drake says that the tool is supposed to be cut so that the guard cannot touch the face of the sole. Is he correct? If not, how is it?

Ans. He is not correct; the guard is supposed to have a bearing anywhere from a sixteenth to a quarter of an inch on the face of the sole.

Int. 4. Please look at the shoes marked "Exhibits Burnished Edge No. 1" and "Burnished Edge No. 2" and state what quality of work they show, and whether worthy or unworthy of Drake, so far as you know his reputation for skill.

Ans. The quality of work, I mean the work he done, is very poor, very unworthy of his reputation. I know that he can do very good work when he tries.

Int. 5. Please produce a shoe with a square edge and with a bevel edge which you saw set on the Union edge-setter.

Ans. These two shoes were set in my presence and by my request, by an operator whose name I don't know, on a Union edge-setter at Shepard & Murphy's factory in Lynn; they were shoes that had laid around the factory three or four months, so that they were not in temper.

(Now put in evidence and marked "Complainant's Exhibit Gordon Shoe No. 1" and "Gordon Shoe No. 2," W. A. C., sp'l ex'r.)

Int. 6. Drake swears that it is not customary, in burnishing the edges of shoe soles, to rest the face of the sole against the back flange or guard of the tool, but that it is customary to draw the edge of the shoe gently toward the lip or front part of the iron. Is this correct? If not, how is it?

Ans. It is not correct; it is just as necessary to press it against the guard as the lip, and lip and guard should both bear equally to get good results.

Int. 7. What is the rule for making irons, and what does the workman go by in filling an order for irons for edge-setting?

Ans. Take this example of square edge, "Exhibit Gordon Shoe 1;" it is No. 6 bed, $3\frac{1}{2}$ lip straight, and guard a little flowing, with bead—the common square bead is what we call it; the shank, size 13, half round with bead; this 13 is Snell & Atherton's measurement, and means $\frac{13}{48}$ of an inch from the inner surface of the rand lip to the top of the guard; the other measurements are all Snell & Atherton, and mean 6 bed; that the bed is $\frac{6}{48}$ wide between bead and guard; $3\frac{1}{2}$ lip straight means that the lip projects $3\frac{1}{2}$ forty-eights from the bed, and that its inner or working face is at only a little more than a right angle with the bed. The other shoe, "Exhibit Gordon Shoe No. 2," is a bevelled edge; it is called a straight bevel. Why it is called a straight bevel, it has no double guard same as is used in a great many cases; it has a No. 2 bed with no bead, and has almost a straight lip—$3\frac{1}{2}$ lip, same as the other shoe, "Gordon Shoe No. 1"—with a half round shank, set with the same tool as "Gordon Shoe No. 1."

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Int. 8. What is the smallest and what is the largest bed that you ever knew to be practically used in burnishing?

Ans. From No. 1, $\frac{1}{48}$ of an inch, to No. 38, $\frac{38}{48}$ of an inch.

Int. 9. Are half sizes ever used in the bed—that is, varying by ninety-sixths instead of forty-eighths of an inch?

Ans. In a great many cases, on ladies' fine shoes.

Int. 10. Are these terms and numbers recent things, or were they in general use when you first knew about burnishing?

Ans. They were in general use when I first knew about burnishing.

Int. 11. Look at the pencil sketch made by Mr. Ashe in "Exhibit Complainant's Patent" and state whether that shows any edge you ever saw before, and whether the tool and edge are in proper relation in that sketch or not.

Ans. I never saw an edge that was trimmed in that shape before, and I don't think that an edge could be trimmed and finished all the way around the shoe after being trimmed in that shape.

Int. 12. Suppose the inner face of the guard was in close contact throughout with the tread of the sole, as in the sketch by Mr. Ashe, what would be the effect upon the shoe?

Ans. I have seen the effect in a great many cases where the lower part of the guard came in contact with the face of the sole, as is shown here in Mr. Ashe's sketch. I have always found in such cases as those that the bottom of the guard would make a deep ridge on the face of the sole, so that it couldn't be buffed out without going through the grain of the leather and deface the finish of the bottom.

492

Int. 13. What did you do with the tool in such cases as that?

Ans. I flare the guard slightly off, so that the bottom portion of the guard would not touch the face of the sole. By bottom of the

guard I mean the lower portion as shown in the drawing. This is often called the top when measuring the guard, but when in use in the machine it is the bottom of the guard.

Int. 14. Is there any difference in the relation of the tool to the edge in the use of the hand tool and in the use of complainant's and defendants' machines?

Ans. None.

Int. 15. Did you ever know or hear of any tool ever being used in that relation to the edge shown in Mr. Ashe's sketch?

Ans. I never did.

Int. 16. There is an English patent referred to by the defendants in this case. Please look at the drawings of that patent, "Exhibit Gubault Patent," especially sheet 3, and state whether you understand the machine shown there.

Ans. I think I understand the way it has been operated, if it ever has been.

Int. 17. What do you believe to be the substantial differences, if there are any, between that machine and the machine described in complainant's patent?

Ans. Well, the machine described in the Gubault patent, as I understand it, you hold the work to the machine horizontal and press from you, while in complainant's machine you hold the work to the machine perpendicular and press upwards.

Int. 18. What is the difference in practical value between the two machines, in your opinion?

Ans. I should judge there was a great deal of difference. On the complainant's machine you can do the work with perfect ease and have full control of your work and see what you are doing at the same time, while on the Gubault machine it looks to me as though the labor would be a great deal more to press the shoe from you, and at the same time it would be almost impossible to see how you was holding your work by holding the shoe in that horizontal way.

493 Int. 19. Do you think that there is a finger rest in the Gubault machine?

Ans. I can't see where there is any, and I can't see where one could be used to any advantage when holding the shoe in that way.

Int. 20. Did you ever try to make the Helms machine without the tool being allowed to swivel?

Ans. Yes; I have.

Int. 21. Do you recollect why this was, and when it was?

Ans. Yes, sir; I do. It was in 1876, first part—spring of 1876—at the Stoughton Boot & Shoe Company's manufactory, Stoughton, Mass. As I understand it, at that time we done it to try to clear the Ingalls patent.

Int. 22. Did you succeed in your attempt?

Ans. No; we did not.

Int. 23. What is the advantage of having the tool swivel?

Ans. The advantage in having the tool swivel is to accommodate itself to the different curvatures of the inner and outer portion of the sole where it comes in contact.

Int. 24. Mr. Ashe seems to think that that part of the guard which does not come in contact with the sole is of no use in the burnishing tool, and produces "Exhibit 6, Burnished Edge," and "Exhibit 6, Burnishing Tool," as proof that he is right. What do you think about this and about those exhibits?

Ans. I think that on his "Exhibit 6, Burnishing Tool," that he has a guard on there that answers all intents and purposes for the edge to be burnished with it, it being a very heavy, firm sole; that a longer guard isn't necessary on that class of work.

Int. 25. He also is probably of the opinion that it isn't at all desirable that the face of the sole should come in contact at all with the guard, and produces "Exhibit 7, Burnished Edge," and "Exhibit 7, Burnishing Tool," as proof of this. What is your opinion about this and about those exhibits?

Ans. His "Burnished Edge No. 7" and "Burnishing Tool No. 7" show the results on the work very plainly of having the guard partially clipped off. It leaves a very ragged outer corner
494 on the face of the sole by not having a guard there to finish the work and hold the face of the sole up in a proper manner.

Int. 26. Mr. Ashe seems to think that you can present all parts of the sole edge properly to the burnishing tool on the Union edge-setter, and also have the finger rest set so far forward that the tread of the sole will always be in contact with the finger rest. Did you ever try to burnish a sole in this way?

Ans. No; I never did, because I think it is an impossibility to do it.

Int. 27. Mr. Ashe produces these shoes ("Exhibits Ashe Examples 1, 2, and 3") and this tool ("Exhibit Ashe Tool"). Do you see any difference between those edges and such as are usually used in shoes?

Ans. No; I don't see any great difference between those edges and the edges that are used on this class of work. I have seen just such edges on this class of work before.

Int. 28. Do you see how he succeeded in keeping the face of the sole hard up against the finger rest in burnishing those edges?

Ans. Yes; I can see how he succeeds—by watching very careful, and watching every move of his hand, and taking about four times longer than it would to burnish the edge with the finger rest back in its proper place.

Int. 29. Mr. Ashe says that the view of the burnishing tool shown in the drawing of complainant's patent is incorrect. Please examine carefully all the drawings in complainant's patent and state whether you can find anything incorrect in the drawings of the burnishing tool.

Ans. I have examined the drawings of complainant's patent, and can find no material difference between the drawings of complainant's patent and the pitch of the tool and the relation of the finger rest to the tool than what we use to-day on complainant's machine.

(Adjourned.)

BOSTON, *January* 20, 1883.

Int. 30. In burnishing the edges of boot and shoe soles is the workman obliged to give any motion to the shoe after the
495 edge is brought into proper relation to the edge of the tool? If so, please explain what kind of a motion, and why such motion is necessary.

Ans. Yes; the operator is required to keep the shoe in constant motion for various reasons. The first reason is, if he carried it no faster than what the tool would burnish, if there was a light used on the machine to heat that tool, which is customarily the case on a reciprocating motion, he would scorch the edge and blister the blacking.

The next reason is that a reciprocating tool on complainant's and defendants' machine has so short a stroke, not being over three-eighths of an inch, that it leaves its mark wherever it stops and starts; and in order to get over that and leave a smooth surface you have to keep the shoe in constant reciprocating motion with your body and arms while the edge is pressed against the tool carrying the shoe from two to four inches on each sweep, or as long a stroke as the size of the shoe will permit.

Int. 31. Where do you ordinarily start when you commence to burnish a shoe, and what is the custom of other operators?

Ans. I ordinarily start on the shank. If a different shape shank is required than fore part, I start on the ball of the shoe to finish the fore part. That is customary with about all operators. Then I continue around the shoe until the edge is finished from ball to ball.

Int. 32. Do you mean that the edge of the sole is first pressed hard up against the tool; secondly, moved back and forth or reciprocated under the reciprocating tool, and, thirdly, gradually moved so as to bring all parts of the edge to the action of the tool, but reciprocated during all the time the tool is bearing upon it?

Ans. I do. The sole must come in full contact with the bed of the tool, and kept in continuous reciprocating motion by the body and arms, as I stated previously, to get the results that are required for good work.

Int. 33. I don't see any gas-pipe on "Exhibit Defendants' Machine;" please explain where the gas-pipe is used and what appliances there are for holding it.

Ans. It is held by a clamp or cap on the head of the machine, and is bent in such a manner as to bring it around to the
496 back part of the tool. The rubber is attached to the part of the tool that leads to the gas jet, same as it does in complainant's machine.

Cross-examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Cross-int. 34. Mr. Drake's reputation for skill as an edge-burnisher stands pretty high, doesn't it?

Ans. Nothing but fair—fair to middling, perhaps.

Cross-int. 35. Your ability to judge of the quality of work in edge-burnishing is great, is it not?

Ans. I don't think it is great, but I think it is of very good average.

Cross-int. 36. From whom did you get your information that Mr. Drake's reputation for skill as an edge-burnisher was fair to middling, by which I presume you mean not strictly prime?

Ans. From a great many sources; from the men that he worked under and from my own experience; seven or eight years in the business, having instructed over four hundred men in the art, I ought to know a little something about it.

Cross-int. 37. Please tell me where the persons you designate as a great many sources conduct their business, and whether they conduct it under that name or under what other name.

(Objected to as irrelevant and immaterial.)

Ans. I don't know as it is necessary to quote names in this matter, is it, Mr. Maynadier?

(Complainant's counsel here says that he don't think the witness is compelled to answer unless he wants to, and while he thinks it is of no sort of importance, he advises the witness to answer unless he knows some sound reason to the contrary.)

I have no sound reason not to answer as I know of, but there is very few that do know him that would call him what we might call a first-class operator.

Cross-int. 38. Now considering Mr. Drake not to be a first-class operator, please point out the defects in the burnishing of "Exhibit Burnished Edge No. 1" and "Burnished Edge No. 2," which
497 are not worthy the reputation of a man whose reputation is that of not a first-class operator.

Ans. Well, "Exhibit Burnished Edge No. 1," it is hard work for me to pick out the defects in it, because it is all defects. There is scarcely one inch of it that is burnished correctly. It looks as though he was trying to do just as poor a job as he possibly could do when he burnished "Exhibit Burnished Edge No. 1."

"Burnished Edge No. 2" is not much better. I don't think he tried to do as good a job on that as he might have done if he had taken the proper precautions.

Cross-int. 39. Well, I suppose you know what the matter is with those "Burnished Edges No. 1 and No. 2," and I wish you would tell me in what respects they are defective, and if you have any idea of the reason of the defect, either in presentation to the tool, in amount of pressure, in the heat given to the tool, in the temper of the leather, please give that reason.

Ans. In "Burnished Edge No. 1" the whole defect seems to be in not using the right size tool for the thickness of the stock. He tried to make a bevelled edge of a No. 2 heft on the bed, and he carried his hand in operating the machine so unsteady that it is hard work to tell whether it was a bevel or a half round or a square.

"Burnished Edge No. 2" would have done very well if he had

put a proper size tool on there, so the guard could have held up the bottom or the face of the sole; it would have also carried his bead all right and given a finish on the rand, which he has not got.

Cross-int. 40. Is there any burnishing tool made that will fit an edge of the varying thickness of the edge shown in "Burnished Edge No. 2" all the way around?

Ans. Nothing on complainant's or defendants' machine, but there is a tool that would come a great deal nearer than the one that he used. He might have used a smaller sized iron on the complainant's or defendants' machine that would have fitted a great deal nearer than the one he used.

Cross-int. 41. I notice in "Gordon Shoe No. 1" that the fore-part iron pressed sufficiently hard upon the face of the sole to leave
498 an irregular compressed border or margin pretty much all round. Is this the usual and desired effect in edge-burnishing?

Ans. This is the usual and desired effect in edge-burnishing for the guard of the tool to rub on the face of the sole hard enough to hold it up in proper shape so that it can be buffed well.

Cross-int. 42. And in that respect you desire to contradict Mr. Drake, do you?

Ans. I do, by all means.

Cross-int. 43. Your opinion is that an edge-burnishing tool always or usually has a narrower bed than the thickness of the sole, is it.

Ans. No, sir; it is not.

Cross-int. 44. How does the width of the bed compare with the greatest thickness of the sole as trimmed?

Ans. The burnishing tool ought to be the exact size of the trimming tool in all cases where an edge plane or a rotary cutter is used.

Cross-int. 45. If the width of the bed of the burnishing tool were of the exact size of the part of the trimming tool which trims the edge for the burnishing tool, to what displacement of leather is it attributable that the face of the sole should bear for so considerable a distance, as shown in "Gordon Shoe No. 1," upon the guard of the burnishing tool while at the same time the bead bears on the upper part of the sole sufficiently to make its indentation?

(Objected to, as the question seems to confuse the bed of the edge with the entire surface of the edge, and is therefore unintelligible.)

Ans. Where a burnishing tool follows exactly that of the trimming tool the leather will always conform itself to the burnishing tool when the guard is straight enough on the burnishing tool to hold the face of the sole up in proper shape, as is shown in "Gordon Shoe No. 1," and as for the bead it is customary for the edge plane or rotary tool to cut a bead on the edge, the same as is on the burnishing tool.

Cross-int. 46. Is the shoe "Defendants' Exhibit 7, Burnished Edge," finished on its bottom by buffing?

Ans. It is.

Cross-int. 47. Was that buffing performed before or after the burnishing of the edge, if you can tell?

499 Ans. I should say it was buffed after the shoe was burnished, as is customary.

Cross-int. 48. Do you say that it was buffed after the shoe was burnished because it is customary, or because of any marks or signs which you see in the work itself?

Ans. Yes; I say so because it is customary. I don't see any marks or signs about the shoe that would indicate whether it was done before or after. It would look very rough either way you have a mind to do it, because the tool that was used on the edge didn't have a proper guard on it to hold the face of the sole up and leave a feather bead or raised bead, which is customary in trying to do a good job. The consequence is in not using the right tool they have left the corner of the edge very ragged.

Cross-int. 49. Please explain what the buffing process is.

Ans. It is sandpapering the bottom of the shoe or otherwise scraping them, which is the old way of doing it.

Cross-int. 50. When you say that the shoe "Exhibit 7, Burnished Edge," has a very ragged outer corner on the face of the sole do you refer to those parts of the edge where it seems as if the cover of the channel for the stitches is insufficiently pasted down?

Ans. I don't see any part of this "Exhibit 7, Burnished," where the cover of the stitches is insufficiently pasted. The cover of the channel is as well pasted down on this shoe as it is on any shoes of this class that is made. The ragged edge, as I stated before, is by not having the burnishing iron come in contact with the face of the sole to give a feather bead, as I said before.

Cross-int. 51. Turning now to "Exhibit Gordon No. 1," and looking at the face of the sole at the fore part of the shoe along the edge where the face of the sole has a different appearance from the centre, produced by compression, apparently, among other causes, is that narrow margin along the edge of the face of the sole considered to be burnished?

Ans. I don't know whether you would call it burnished or not. There is no blacking supposed to be put on there to make a burnished edge. It is the rubbing of the reciprocating guard of

500 the tool on the face of the sole that causes that, which is right and proper to get good results.

Cross-int. 52. Is blacking necessary for burnishing?

Ans. No; it is not in a great many cases, but that is what we customarily require in the act of shoe-burnishing to make what we call a burnished edge.

Cross-int. 53. Now, if the edge of a shoe sole be trimmed without blacking and then held up to the burnishing tool of the complainant's machine as a shoe is ordinarily held to burnish the edge with the same pressure and in the same manner as a first-class operator would hold it, the machine being in motion, would you obtain what would properly be called a burnished edge; or, in other words, do shoes the sole edges of which are finished of the natural color of the

leather, shined up as ordinary canvas shoes, called base-ball shoes I believe, are finished, have burnished edges to their soles?

Ans. It is customary to call such edges as you speak of, in shoemaker's phrases, "red edges." I never saw any finished with the natural stock without putting something on for a substitute for ink, such as gum, pork fat, and a dozen other things that they do use for that class of work. I suppose it is a burnish, naturally speaking.

Cross-int. 54. Now, how do you distinguish the burnishing part of the tool which burnishes from that part of the tool which rubs the leather and shines it and compresses it and doesn't burnish—by gum, pork fat, and blacking, or otherwise?

Ans. All parts of the iron that rubs on the shoe burnishes, whether it polishes or makes a glossy, smooth surface.

Cross-int. 55. Then the work done by the guard where it affects the texture of the face of the sole is burnishing just as much as the work done by the lip or bead or bed, isn't it?

Ans. No; it is not; it is burnishing, in one sense of the word; but there isn't the pressure used on the guard same as there is on the bed, because it does not require it and there is not pressure enough put onto the guard, though it makes a burnish on the face of the sole, but what it can be buffed out nicely if it is done in a workmanlike manner.

501 Cross-int. 55*a*. Then the pressure against the guard which you testified to in your first examination is a light pressure, is it?

Ans. Yes; it is a light pressure, sufficiently to hold the face of the sole up in proper shape so that the face of the sole can be finished smooth and nice without cutting through the grain of the leather.

Cross-int. 56. With a bevel-edge tool such as used in the shank of the two shoes produced by you, "Gordon shoe No. 1" and "Gordon shoe No. 2," is there any portion of the sole in contact with any part of such a tool that is not burnished?

Ans. No; there is not. Every part of the sole or edge that the tool has touched it has burnished it.

(Noon recess.)

Direct examination resumed:

Int. 57. I judge from the 43d, 44th, and 45th cross-interrogatories that defendants' counsel thinks that the bed of the burnishing tool has some definite relation to the thickness of the sole. How is this, in fact?

(Objected to because no such judgment could be intelligently formed from the question, the simple desire of which was to find the witness' views on that subject.)

Ans. It has no definite relation to the thickness of the sole. The guard and lip determined that—the thickness. In this shoe, "Exhibit Gordon Shoe No. 2," the bed of the tool that finished the sole is a No. 2 bed, $\frac{2}{48}$ of an inch wide, and the sole is about $\frac{7}{48}$ of an inch th ck.

Cross-examination resumed:

Cross-int. 58. Then you wish to be understood, do you, that the width of the bed of the burnishing tool determines the thickness of the sole of a shoe, rather than that the thickness of the leather from which the shoe sole is made determines the width of bed of the tool to be used on it, do you?

Ans. When I take a shoe up in my hand to finish it on the machine I look at that sole edge, and I can see very readily what
502 size tool it will take to finish it right. If it takes a No. 7 iron to finish that sole—I mean $\frac{7}{48}$ of an inch between the guard and the lip—that is the iron that I use to finish it with. If it would take a No. 12 iron I should use that, according to the thickness of the sole of the shoe on the stock that I was using.

Cross-int. 59. Then it is the thickness of the sole that determines in the mind of the operator what width of bed of tool he shall use in burnishing the sole edge, and not the guard and lip of the tool which determines the thickness of the sole?

Ans. It is the guard and lip of the tool that determines the width of the bed in all cases in tools that are used on complainant's and defendants' machine.

Cross-int. 60. That doesn't quite answer the question. Please hear it read again and try once more to answer it directly.

Ans. It is the thickness of the sole which the operator has to guide himself by what size tool he shall use on that sole edge, but he has to have something to start from. If there was only a bare bed there, with no lip or guard, the tool would be of no consequence at all. That is the only way that I know of that you can get your measurements for to guide by for the different thicknesses of sole edges.

Direct examination resumed:

Int. 61. Look at the "Exhibit Snell Circular" and give me the width of bed in the cuts marked 1, 10, 24, 28, and 29.

(Objected to as incompetent and immaterial and not open in the redirect.)

Ans. No. 1, the size of the bed is No. 12, $\frac{12}{48}$ of an inch; No. 10 is called a shank iron; it has no bed; No. 24 has a No. 6 bed; No. 28 is a half-round shank iron; has got no bed; No. 29 is a bevel shank iron with a bead and no bed.

(Defendants' counsel makes a motion to strike out as irresponsive to anything in the interrogatory and pure gush.)

503 Cross-examination resumed *de bene:*

Cross-int. 62. Consequently you would use either of the tools 10, 24, 28, and 29 on a sole of any thickness, would you?

Ans. Well, no; not of any thickness. Those tools, as the size they appear here on the diagram—No. 10 would finish anywhere from a No. 6 ($\frac{6}{48}$ of an inch) to a No. 10 ($\frac{10}{48}$ of an inch).

No. 24 would finish the size bed that it was designed for, about a

No. 6 bed, and would take in about a No. 12 in thickness of stock, if you finish down to the bottom of the guard.

No. 28 would finish anywhere from a No 10 to a No. 14 thickness of sole.

No. 29 would finish from a No. 6 to No. 14 thickness of sole.

Cross-int. 63. Please mark, in some way convenient to yourself, on the tool, sections shown in the exhibit in your hand (Snell circular), Nos. 10, 24, 28, and 29, the point where the burnishing part of the tool ends and the rest for the face of the sole which doesn't burnish begins in each, every, and all thicknesses of sole to which these tools are adapted, being careful to point out the subdividing line between that part of the tool which never produces any burnishing effect with any thickness of sole and that part of the tool which always produces a burnishing effect with any thinness of sole, and state what is the extreme thickness and what is the extreme thinness to which your answer shall refer, preserving the same line of subdivision for each and every thickness and thinness of sole.

Ans. The burnishing surface of No. 10 commences at the extreme point of the lip and takes any thickness between that and the extreme top of the guard; I mean the double guard; anywhere from $\frac{1}{48}$ of an inch to $\frac{8}{48}$ of an inch, and the extreme top of the iron No. 10 does not burnish at all on any surface.

No. 24 will burnish from the top of the lip to the top of the guard, which will take in from a No. 6 to a No. 14.

No. 28 will burnish from the top of the lip to the extreme point of the channel guard, taking in the thickness of No. 3 to No. 14, $\frac{14}{48}$ of an inch.

No. 29 will take in about the same thicknesses as No. 28, only a different style of an edge.

504 I have marked those numbers, 10, 24, 28, and 29, as near as I understand the defendants' question. I have marked four marks on each diagram. The first mark is on the lip—that is, the extreme burnishing point of the lip. The second mark indicates the thinnest stock, and the third the heaviest, and the fourth where it does not burnish at all.

Cross-int. 64. You can't point, then, to any place on either of those four tools which constitutes the dividing line between that part of the tool which never burnishes and that part of the tool which always burnishes, whatever the thickness of the sole, can you? It is a variable point, according to the thickness of the sole, isn't it?

Ans. Yes; I think I can point out the dividing line between that part which burnishes, whatever the thickness of the sole, and that which never burnishes on ordinary work. The dividing line is the third line, calling that on the top of the lip No. 1. The second line will burnish almost any thickness—that is, the thinnest thickness—and the fourth line will not burnish any thickness on ordinary work.

Cross-int. 65. Then the space between the third and fourth lines never burnishes, does it, whatever the thickness of the work?

Ans. That depends on which of those tools you are talking about. I had reference to No. 10.

Cross-int. 66. Well, that space between the third and fourth lines on No. 10 never burnishes, does it?

Ans. Yes; it does, a certain distance of it. If you will mark my fourth line in diagram 10 you will find that it sets on the extreme top of the diagram, a little way from the burnishing surface.

Cross-int. 67. Does the space between the third and fourth lines in No. 24 ever burnish?

Ans. It does not.

Cross-int. 68. Never?

Ans. Never on ordinary work.

Cross-int. 69. Does the space between the third and fourth lines in No. 28 ever burnish?

Ans. It would if the stock is thick enough, but it is not customary to have it burnish.

505 Cross-int. 70. Would the space between the third and fourth lines of No. 29 ever burnish?

Ans. It would not without having an edge trimmed purpose for it, which is not customary.

Cross-int. 71. If you used No. 24 on a No. 12 thickness of stock would it finish down to the bottom of the guard?

Ans. It would finish down to the bottom of the guard and about half way up the guard, as near as I can judge. I have nothing here to make the correct measurements.

Cross-int. 72. What did you mean when you said, in answer to cross-interrogatory 62, "No. 24 * * * would take in about a No. 12 in thickness of stock if you finish down to the bottom of the guard,"— by the words "bottom of the guard;" the same that you meant by the words "bottom of the guard" in your last answer, or something different?

Ans. Well, it was only just the way that I am holding this paper in my hand ("Exhibit Snell Circular"). Sometimes my mind is on the machine as the tool would be used on the machine and at other times as I am holding the circular. In answer to cross-interrogatory 62 by "bottom of the guard" I meant what is the top of the guard as I hold the circular right side up.

Cross-int. 73. That is, you meant by "bottom of the guard," in your sixty-second answer, the other end of the guard from what you meant by the words "bottom of the guard" in your seventy-first answer, didn't you?

Ans. "Bottom of the guard" means close to the bed in the seventy-first answer.

(Question being re-read:) Yes; I did.

Cross-int. 74. Where would the 14 thickness of sole come to on No. 29; to the fourth mark?

Ans. It would come very near to the third mark.

Cross-int. 75. Where would the No. 6 thickness come to on No. 29; to the same point as the No. 14?

Ans. No; it would not. It would come a very short distance past the second mark.

506 Cross-int. 76. Then you haven't marked, have you, the point which subdivides the part which never burnishes from the part which always burnishes with each and every thickness of sole? Confine yourself to diagram No. 29.

Ans. I have not on No. 29.

Cross-int. 77. Have you on No. 28?

Ans. No; I have not on No. 28.

Cross-int. 78. Have you on No. 24?

Ans. On No. 24 I have.

Cross-int. 79. And it is the same point, is it, whether the sole is No. 6 or No. 12?

Ans. No; it is not the same point.

Cross-int. 80. You can't make it the same point with a No. 6 as with a No. 12, can you?

Ans. No, sir; I cannot.

Cross-int. 81. But it would be the same point on No. 10 whether you were using No. 10 on a No. 6 or a No. 10 sole, would it?

Ans. No.

Cross-int. 82. Then all your marking, in answer to cross-interrogatory 63, was wrong, wasn't it? Please hear it read.

Ans. It was not wrong. It was as near right as I could answer your question, or as I understood your question.

Cross-int. 83. But there isn't any uniform line between the part of the tool that doesn't burnish and the part of the tool that does burnish, unless the same thickness of sole is preserved, is there?

Ans. No; there is not.

WILLIAM GORDON.

Attest: WILLIAM A. COPELAND,
Special Examiner.

507 *Further Evidence for Defendants.*

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, William A. Copeland, special examiner.

BOSTON, *March* 8, 1883.

Present: J. E. Maynadier, Esq., of counsel for complainant; Thos. Wm. Clarke, Esq., of counsel for defendants.

Deposition of Robert Ashe.

Direct examination by THOS. WM. CLARKE, Esq., of counsel for defendants:

Int. 1. What is your name, and have you before testified in this case?

Ans. Robert Ashe; I have.

Int. 2. If you have made a wooden model of the apparatus for edge-burnishing described in the Gubault patent will you please produce the same?

Ans. I have made a limited model of the apparatus for burnishing the edges of boots and shoes described in the Gubault patent. I say "limited" because I only show one tool. The full-size machine would show about four. Here is the model.

(The model referred to is put in evidence and marked "Defendants' Exhibit Gubault, W. A. C., sp'l ex'r.")

(Cross-examination waived.)

ROBERT ASHE.

Attest: WILLIAM A. COPELAND,
Special Examiner.

508 *Amendment of Answer.* (*Filed, by Consent, as of September Rules.*)

Benjamin F. Spinney and L. P. Bartlett, Jr., defendants in the above-entitled cause, by leave of court amend their joint and several answer therein by adding to the same as follows—that is to say:

On the fifth page of their original answer, immediately preceding the 8th clause thereof, the words—

"And in the British letters patent to P. F. Gubault, numbered 879, of the year A. D. 1868, and in the British letters patent to A. C. Andrews, numbered 59, of the year A. D. 1874."

And on the seventh page of their original answer, immediately preceding the 9th clause thereof, the words—

"And in the British letters patent to P. F. Gubault, numbered 879, of the year A. D. 1878, and in the British letters patent numbered 59, of the year A. D. 1874."

BENJAMIN F. SPINNEY,
L. P. BARTLETT,
By THOS. WM. CLARKE,
Solicitor and of Counsel.

509 EXHIBITS.

DEFENDANTS' EXHIBIT SOUTHALL PATENT, 1863. W. A. C., Sp'l Ex'r.

Letters patent to Charles Henry Southall and Robert Heap, of Staleybridge, in the county of Lancaster, for the invention of "improvements in self-acting machinery or apparatus worked by steam or other power for cutting and shaping the soles and heels of boots and shoes and screwing them onto the uppers or coverings, and also in vices for holding the same, and tools for paring, blacking, and glazing or otherwise ornamenting the edges of the soles and heels."

Sealed the 29th April, 1864, and dated the 6th November, 1863.

* * * * * * *

Provisional specification left by the said Charles Henry Southall and Robert Heap at the office of the commissioners of patents, with their petition, on the 6th November, 1863.

* * * * * * *

Specification in pursuance of the conditions of the letters patent filed by the said Charles Henry Southall and Robert Heap in the Great Seal Patent Office on the 6th May, 1864.

To all to whom these presents shall come we, Charles Henry Southall and Robert Heap, of Staleybridge, in the county of Lancaster, send greeting:

This invention relates to that description of boots and shoes in which the soles are fixed to the uppers or coverings by screws, and consists in cutting the soles, making the screws, fixing the soles, and finishing their edges by means of self-acting machinery, so that a large number of boots or shoes can be made in a short time without employing skilled labor, and only requiring the ordinary wooden last without any plating, the several operations being performed either in one machine or one machine employed for cutting
510 the soles, another for screwing the soles and heels onto the uppers or coverings, and another for paring and finishing. As the screws are required to be of a greater length for the heels of the boot or shoe than for the soles, we begin by screwing on the sole at one of the sides, close to the heel part, and continue onwards round the toe and the other side until we arrive again at the heel part, and this operation is performed for as many boots or shoes as required, after which the heels are screwed on, and then the soles and heels are pared and polished, either in the same machine or in a separate one.

The manner in which our invention is to be performed will be clearly understood by referring to the figures and letters on the accompanying sheet of drawings, in which Fig. 1 is a side elevation of our improved self-acting machinery for cutting and shaping the soles and heels of boots and shoes and screwing them onto the uppers or coverings and afterwards paring and finishing their edges, all of which operations are performed in one machine. Fig. 2 is an end elevation, and Fig. 3 a plan of part of the same, and Figs. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17 are detached views of various parts of our improvements.

In Figs. 1, 2, and 3, which are drawn to a scale of one and a half inches to the foot, *a* represents the frame-work of the machine; *b*, the driving shaft; *c*, the driving and loose pulleys, and *d*, the driving straps.

* * * * * * *

The vice for holding the boot or shoe when the sole part has to be screwed on is shown in Figs. 1, 2, 4, and 5, the two figures 4 and 5 being drawn to a scale of three inches to the foot. The said vice consists of an oblong iron box or frame, *q*, with square ends, and made rather longer than the largest-sized boot and rather wider than the broadest and about two inches deep. Parallel with the sides of this box are two levers *r* formed of round smooth rods, one end of each of which works on a fulcrum fixed to one end of the box, and the opposite ends of the said levers work in a slot in the other end of the box for the purpose of keeping them steady. At or about the centre of

each side of the box there is an axis or trunnion, *s*, which enables
511 the box to swivel up and down when in work, and through these axes are placed the screws *t*, which are in contact with and press up the aforesaid levers. At one end of the box there is a bed, *u*, for receiving the toe of the boot or shoe, and on the aforesaid levers there are clips *v*, made of brass or any other suitable material, between which the boot is placed, which clips have bosses with entire holes or have half bosses with semi-circular cavities. These latter clips are of various sizes, and different views of one drawn about full size are shown in Figs. 6, 7, and 8. That part of the clip which is in contact with the smooth levers *r* is curved in two directions, as at *w*, so that it may have a universal action and allow the nose of the said clip to bed freely against the boot, and the bed *u* is so placed that the toe is central with the centre of the stud on which the table and rack revolve. At the sides of the box are placed small rollers *x* for purposes hereinafter described. The boot being held in this vice securely, the vice is then placed with its axes resting on two bearings or brackets *y*, Figs. 1 and 2, fixed on the table *p*, which table is oblong in shape, with circular ends, and with a slot down the middle sufficiently long to accommodate the largest-sized boot. This slot is bevelled on the under side, and rests on a corresponding bevelled slide, in the centre of which is placed a boss bored as in an ordinary wheel. On the top of the table *p*, and screwed fast to the slide, there are plates *z*, Figs. 1, 2, and 9, having in the curved or cam-shaped grooves, in which the before-mentioned rollers *x* at the sides of the vice or box work, whereby the boot is made to rise and fall to suit its different curves, and thereby present a proper surface to the screws, shears, and finishing tools. An enlarged view of one of the grooved plates is shown in Fig. 9, but the plates and grooves are of different dimensions, adapted to boots and shoes of different sizes and shapes, and both plates on the table may have the same form of grooves and have all the four rollers *x* working in them, or one plate at one side may have a groove adapted for men's boots and shoes and the other plate a groove for women's boots and shoes, and then two of the rollers *x* would work in the groove of the plate in use and the other rollers would have to be removed. Underneath the
table *p* is a fixed rack, a^1, Fig. 1, round at one end and
512 straight at the sides, but only the length of the largest-sized boot and the breadth of an average-sized one, and by being so arranged it is suitable for all sizes and sorts of boots or shoes. To suit the irregularities of the edges of the soles the table *p* is made to move to and fro by the centre of the slide being placed on a stud, b^1, which is central with the toe of the boot or shoe and fixed on the top of a pedestal shaft, c^1, about three or four feet long, the bottom of which is screwed in a cross-bar with turned ends, which ends work in two brackets d^1 placed on a bottom plate, e^1. On this plate also is placed a stud, which carries a toothed wheel, f^1, with an universal joint placed thereon, to which joint is connected the shaft g^1, carrying at the top a pinion, h^1, which gears into and drives the aforesaid rack a^1 for giving motion to the table. The wheel and rack are kept in gear by means of a casting, k^1, keyed on the pedestal shaft

and bored the proper distance from it to allow the shaft g^1 to pass through. The pedestal shaft c^1 and shaft g^1 are therefore always allied with each other and move to and fro according to the curves of the edge of a boot sole, the sole itself forming its own cam or guide. There is a fixed guide, l^1, Fig. 1, placed immediately underneath the shears, against which the edge of the boot sole works, and to keep the edge of the sole to this guide a strong string, m^1, Figs. 1 and 2, acts against the back of the pedestal shaft c^1.

The table pedestal and its appendages, just described, require to move up and down to suit the inequalities of the boot sole, and this has to be effected with great care. To effect this the plate e^1 and the plate n^1 are fixed to a shaft, o^1, about four feet long, or longer if convenient, for the longer the shaft the easier the motion. The plate e^1 is keyed as near the bottom as possible and carries the pedestal and the whole of the weight of the table and its appendages and rests on the foot plate of the machine when not in work; the other plate, n^1, is keyed on the top and contains merely a slot for guiding the pedestal and keeping it always in the centre. The frame at p^1 and foot plate are bored to make bearings for this shaft o^1, and with the bearings being so far apart it moves up and down with the greatest ease. A weighted lever, q^1, is connected by a rod, r^1, to the shaft o^1 or to the bottom plate e^1 for the purpose of
513 raising the boot against the nose of the shears, against which it beds, and a proper weight being employed at the weight end the boot always maintains its proper position.

* * * * * * *

When the screwing is completed the vice containing the boot is removed to another portion of the machine, where a table, k^3, similar to the table p, already described, but larger, is placed to receive it for the purpose of finishing the edges. There is, however, a difference in the motion of the tables, inasmuch as the one used for the screwing moves at intervals, whereas the motion of the finishing table is required to be continuous. The finishing table is not required to move to and fro; neither is it required to move up and down, and therefore works on a fixed centre, a^5. To the under side of the table is fixed a rack, b^5, similar to the one before described, gearing into a toothed wheel, c^5, fixed to the shaft e^5, which carries at the bottom the spur wheel f^5. The tools have to-and-fro motion sideways imparted to them, according to the shape of the heel and sole, by a lever, l^3, jointed to a fulcrum on the movable arm or lever m^3, the end of the lever l^3 being bored to receive the various tools, and the lever m^3 being kept up to its work by the lever and weight n^3. This lever l^3 is also jointed, as at o^3, to the slide p^3, which can be held up by a catch, and thereby hold up the lever when it is not in work, as shown by the full lines. When the catch is turned back the slide is lowered, and with it the lever, as shown by the dotted lines, and the slide and lever are free to move up and down and follow the various curves of the boot sole when the tool is placed therein, for in connection with the tool there is a guard which rests upon the boot sole and is kept there by a spring or by the weight q^3 connected to the slide, and is guided by the boot sole accordingly.

This lever, therefore, resembles more than anything else the human arm, the elbow being the movable fulcrum and the hand the end for holding the tool, and when the fulcrum of the lever l^3 is raised in the lever m^3, so as to place the lever l^3 in an angular position, the heels can be pared and polished to an angle corresponding with the height to which the fulcrum is raised. The band which drives the screwing portion can also be used for driving the finishing tools, or
514 they may be driven by two separate straps, as shown in the drawing. It is not convenient to finish the fore part of the boot and heel at the same time, on account of the extra thickness of the heel. To overcome this difficulty, therefore, the tools are made to traverse the edge of the boot sole from one corner of the heel to the other and then return. This is effected by means of two bevel wheels r^3, with half of a catch-box cast on each, running loose on the driving shaft and gearing into and on each side of a larger bevelled wheel, s^3, fixed to the vertical shaft g^5, which carries at the bottom the spur wheel h^5, gearing by means of the carrier wheel k^5 with the spur wheel f^5, so that when the vertical shaft g^5 revolves motion will be given to the table k^3. Between the two catch-boxes is placed a boss, t^3, to which is cast the other halves of each catch-box, which boss slides backwards and forwards on a key secured on the driving shaft b, so that when it is in gear with one it is out of gear with the other, and *vice versa*. The middle of this boss is grooved and a fork fastened to a sliding bar, u^3, rests in the groove and works the said piece. This bar is made self-acting by means of a series of levers, v^3, one of which is provided with a weight, w^3, and is worked by adjustable cams x^3 and x^4, bolted to the table in slots y^3, Fig. 3, so that they can be made to suit either a large or small boot or shoe; which cams, coming in contact with the bowl z^3 on the lowest of the series of levers v^3, cause the levers to rebound to and fro at the proper time, thereby first putting one catch-box into gear and then the other. To stop the machine a catch lever is used which enters a notch in the sliding bar u^3, and holds the catch-boxes equidistant from each other and out of gear with the bevel wheels. The tools for cutting the edges of the sole of the boot or shoe are shown in Figs. 1, 12, 13, and 14, Figs. 12 and 13 being drawn to a scale of three inches to the foot, and Fig. 14 about full size. The said tools are made of brass or any other suitable material, with steel cutters, and are arranged somewhat similar to a joiner's plane, but are made to swivel universally to suit the various curves of the boot sole. The principle of this plane or cutter is this: there is the cutting edge a^4, Fig. 14, and two guiding surfaces, b^4 and c^4. The cutting edge, and also one or other of the guiding surfaces, according to the
515 position of the cutting edge, whether on the side or toe or heel of the boot or shoe, must be kept to the edge of the part to be cut. To enable this tool to work properly, we prefer that the cutting edge a^4 should be placed exactly in the centre of the stud which carries the said cutting edge and surfaces, or it may be placed between the said cutting edge and one of the guiding surfaces, or in any other convenient position, which stud works in the centre of the boss d^4; and the weighted lever n^3, Fig. 1, is brought to bear against the arm

lever l^3 in which the tool is placed, and forces the cutting edge and one of the surfaces against the boot sole, which, coming equally against each, compels the cutter to keep at its proper angle. The boss d^4 forms part of a cranked holder, g^4, with a stud, h^4, opposite the cutting edge, which stud fits in a hole bored in the aforesaid arm lever l^3, and it is thereby enabled to follow and bed into the various curves of a boot sole, the stud h^4 being prevented from turning completely over by means of a pin or key, i^4, Figs. 12 and 13. The guard k^4 of the tool rides on the boot sole and is made broad and of a proper shape, so that it may be easily worked by the same. It is also made adjustable by the screw and nut l^4, so that it can be raised and lowered to suit any thickness of sole or heel. The tools for blacking and glazing are jointed to a cranked holder, having a stud fitting the arm lever l^3, and work up and down and to and fro in the same manner as the cutting and paring tools. For cutting the soles previously to their being placed on the boot or shoe, we remove the vice from the table k^3, and place upon the said table another table, m^4, having centres n^4, Figs. 15 and 16, which figures are drawn to a scale of one-eighth. On this table is placed the part of the hide to be cut, and above which there is a template, o^4, held fast by screws or by the lever p^4, which is pressed down by the cam q^4. This template forms the guide for the tool which cuts the leather beyond the template, the leather being placed on the roller r^4. The knife or cutter for cutting the hide is constructed on the same principle as the tool for paring the edges of the soles and heels, the only difference being in the shape of the cutter, one of which is shown enlarged in Fig. 17. This arrangement supersedes
516 the present expensive stamping tools, and can be worked with as much ease as the tools for paring.

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DEFENDANTS' EXHIBIT SOUTHALL PATENT, 1870. W. A. C., Sp'l Ex'r.

Letters patent to Charles Henry Southall, of Staleybridge, in the county of Lancaster, and John Blakey, of Leeds, in the county of York, for the invention of "improvements in self-acting machinery for making and finishing boots and shoes."

Sealed the 19th May, 1871, and dated the 21st November, 1870.

* * * * * * *

Specification in pursuance of the conditions of the letters patent filed by the said Charles Henry Southall and John Blakey in the Great Seal Patent Office on the 20th May, 1871.

To all whom these presents shall come we, Charles Henry Southall, of Staleybridge, in the county of Lancaster, and John Blakey, of Leeds, in the county of York send greeting:

* * * * * * *

Our invention consists of four parts, and the machines are worked by steam or other power.

* * * * * * *

Figures 5, 6, 7, 8, and 9 are various views of the holders or apparatus for holding the boots and shoes in the several machines. Figs. 10 and 11, sheet 2, are side and end elevations of the machine, in which the edge of the sole is pared and glazed, and the only difference between this machine and that used for paring and glazing the edge of the heel is in the apparatus for holding the boots or shoes. Figs. 12, 13, 14, and 15 are different views of one of the tools for paring the soles. Figs. 16 and 17 are side and front views of one of the glazing tools. Figs. 18 and 19 are end and side views of one of the tools for paring the heels, and Figs. 20 and 21 are side views of different tools for paring by hand.

517 In the various machines the frame-work is marked *a*, the driving shaft *b*, the pulley *c*, and the driving strap *d*. In each of the three different processes the principle of placing the boot in the machine is the same, and we therefore desire it to be thoroughly understood. The principle we adopt is to place a rack, *g*, Figs. 1, 5, 6, 7, 8, 9, 10, and 11, with straight sides and one half circular end underneath a table, *h*, made of metal or other suitable material, and so arrange the boot *i* that by drawing a straight line from the center of the circle of the toe to the center of the circle of the heel that line will correspond with a line drawn down the center of the rack; in other words, we want the center of the circle of the toe to be placed as near as possible over the center of the circle of the rack, so that they will each move in a similar manner. To do this we make the table *h* the same form as the rack, down the middle of that of which we make a dovetailed or bevelled slot, in which is fitted a correspondingly bevelled slide, *k*, Fig. 6, fixed to a stud to enable the whole to make a semi-revolution, and the slot is made long enough to accommodate the largest-sized boot. The center stud of the slide is turned and fitted into a bearing prepared for it at the top of the upright pedestal shaft *l*, Fig. 1, and this pedestal also carries the shaft *m* and pinion, *n*, for giving motion to the rack *g* and table *h*. The length of this pedestal is between two and three feet long, but it can be made any other length, and the lower end works in bearings *o* to allow it to move to and fro with ease, and it is also made to work up and down easily by means which will be hereafter described. On the top of the table *h* we screw fast to the slide a cam plate, *p*, Figs. 6 and 11, planed flat on the bottom and having two upright sides *q*, Figs. 1, 6, 10, and 11, with grooved cams in them, one to suit women's boot soles and the other men's. We also screw on the table, outside the cam plate, two brackets *r*, having bearings to support the box *t*, in which are held the boots, the box having two turned studs *u* fitting the bearings. The box, therefore, can oscillate up and down, and to enable it to do so we place small rollers at each corner or other suitable place on the women's or men's side, as required, and as the table travels along these rollers enter the grooved cam in the corresponding side *q*, and thus the proper motion is given to the

518 boot. If a line be drawn down the center of this box parallel with the centre of the table and rack, and a taper, pin, or plug, *v*, Figs. 5 and 6, of oblong shape, be fitted in it

so that its centre line will also correspond; and if it be placed in a fixed place, say seven inches from the centre of the circle of the rack and table, it follows that a taper hole being made in the last on which a boot is about to be made seven inches from the centre of the boot-toe circle that all the centres must come opposite each other. This, then, is the plan we adopt for the sake of accuracy, and by this means we are enabled to make any sort or size of boots without change, although we are not bound to be so exact, as our other motions, hereafter described, render it possible to work the machines if they were placed otherwise. So far, therefore, we get the boot to move in straight lines and turn half round at the toe. The last of the boot is not only placed on the taper pin, but the toe of the boot rests on a padded prop, *w*, which can be raised or lowered as required, and the boot is held firm by the screw *x*, Figs. 1, 10, and 11, which acts on the presser *y*, jointed to the bracket *z*, connected to the box *t*, there being a clamp, *j*, to prevent the bracket from turning back. The inequalities sideways we overcome by the pedestal shaft *l*, Fig. 1, working on centres at the bottom and having its upper end kept steady by a slotted plate, a^1. The pedestal *l*, table *h*, and boot *i*, Fig. 1, we may say now form one pedestal, the boot sole being the highest part. We therefore place a spring, b^1, at the back of the pedestal shaft and fix just below the shears c^1 a guide, d^1, to receive the edge of the sole. The up-and-down motion we get by means of a balance lever, e^1, Fig. 1, with a weight, f^1, at one end sufficient to balance and just raise the pedestal, table, and boot. The screws are made from a coil, g^1, Fig. 1, of brass or other metal wire, placed on a reel at the top of a hollow spindle, h^1, down which one end passes onwards through dies, to be screwed then between the open shears and through the soles and uppers, and finally cut off by the shears, the various lengths of screws being obtained by means of change-wheels k^1. The stop motion for stopping the revolution of the hollow spindle h^1 when the wire is screwed in consists of a check strap, l^1, worked by a cam, m^1, on the main vertical shaft n^1; another cam, o^1,
519 on the wheel p^1 first lifting a catch-box, q^1, out of gear to allow the stoppage of the spindle, the shaft n^1 being made to revolve by the bevel wheel m^8, geared into the bevel wheel n^8, fixed to the driving shaft *b*. Another cam, r^1, also works the shears c^1, which cut the screw off when it has penetrated the proper distance, and at the bottom of the shaft n^1 there is another cam, s^1, for working the feed motion, which is placed on the foot plate of the machine, and which we shall describe more fully hereafter.

* * * * * * *

There are various ways of giving and regulating the feed, but in that shown in Figs. 1 and 2 we cause the shaft *m* to be jointed by a universal joint to the boss v^1 on a disc wheel w^1, to which is fixed the ratchet wheel x^1, below which there is a lever, y^1, carrying two friction clips z^1, and the lever a^2, which has at one end a bowl, b^2, and at the other end an adjusting screw, c^2. The lever y^1 is connected at one end to the spring d^2, and on the bed plate there is a catch, e^2, in connection with the ratchet wheel x^1, and a screw, f^2, for regulating the movement of the lever and friction clips. When the

feed has to take place the bowl is quickly moved by the cam s^1 to the largest radius of the cam, the effect of which is to compress the clips against the periphery of the disc and give it a short circular movement, which is transmitted to the shaft m, and pinion n gearing into the rack g, and thus the rack table and boot are moved as required. As the cam revolves, the lever y^1 and clips z^1 are gradually moved back by the spring d^2 until the lever is stopped by the screw c^2, and by turning the screw to allow the lever to move back more or less the feed is lengthened or shortened.

* * * * * * *

In Figs. 10 and 11, sheet 2, representing the machine used for paring and finishing the edges of the soles, we use exactly the same boot motion as in the screwing or nailing machine, but the motion is continuous instead of being at intervals. On the shaft b, carrying the driving pulley c, there is a pinion, v^2, gearing into the toothed wheel w^2 at one end of the shaft x^2, there being at the other end two bevel wheels, y^2, running loose on the shaft, but gearing into the bevel wheel z^2 on the vertical shaft a^3 carrying the pinion b^3.

520 Each bevel wheel y^2 has a half-clutch box, and between the two working on a key there is a boss, c^3, with double clutches, so that when one bevel whool is clutched the shaft a^3 and pinion b^3 will be turned in one direction, but if the other bevel wheel is clutched the shaft and pinion will be turned in the reverse direction, and when the clutches are out of gear the shaft and pinion are stopped. The pinion b^3 gears into the toothed wheel c^3 on the shaft d^3, carrying the spur wheel e^3 and pinion f^3, gearing into two wheels, g^3 h^3, having half clutches and running loose on the shaft k^3, on which is held, by means of a feather or key, the boss l^3 with double clutches, so that when the boss is clutched by means of the lever m^3 into the wheel g^3 the shaft k^3 will turn quicker than if the boss is clutched into the wheel h^3, and thus different speeds can be given to the pinion n, the rack g, and the table h, with the boot-holder and boot the slower motion being adapted for paring and the quicker one for glazing or finishing. The irregularities of the edges of the boot sole are overcome by employing an arm lever, k^3, Figs. 10 and 11, bored at the front end to receive the tools, the lever being so arranged that it will move backwards and forwards and the end up and down with ease, so that it will follow any form of boot sole against which it is brought to bear. The arm lever k^3 is jointed to the arm l^3, having a stud in contact with the weighted lever m^3, and the front part of the arm lever is jointed to a rod, n^3, encircled at the top by a spring having one end in contact with the knob or nut o^3 and the other end in contact with the projecting lug p^3, and for raising the weighted lever m^3 to allow the arm lever to be raised and lowered we employ the treadle q^3, rod r^3, lever s^3, and rod t^3. The boss c^3 has a groove in which there is a fork connected to the hand bar f, so that the table and boot can be put in motion, reversed, and stopped by hand; but this bar is also made self-acting by means of the double lever v^3 w^3, the arm v^3 being connected to the bar f, and the other arm having a projection which can be acted upon by the cams a^4 b^4, adjusted and fixed to the bottom of the table h, there

being notches in the bar *f* in which a lever, a^8, is held by a spring, b^8, to keep the clutches in gear as required.

* * * * * * *

521 The glazing tool, which is of polished and hardened steel, is fitted to a cranked holder similar to the cutter holder, and swivels in the same manner, and after the sole is pared the cutting tool is removed from the arm lever and the glazing tool substituted for it. One of these glazing tools is shown in Figs. 16 and 17, p^4 being the holder, q^4 the stud fitting the arm lever, r^4 the guide which rides under the edge of the sole, s^4 the guard which rides on the top of the sole, t^4 the spring which regulates the guard, and u^4 the glazing tool having an external rounded surface, there being at the back a small jet of gas to warm the tool.

For the glazing or finishing operation it is necessary that the table and its adjuncts should move forwards and backwards until a proper polish is obtained, and therefore the cams a^4 b^4 under the table are adjusted to make the movements self-acting; and if, after the edge of the sole is well blacked and dried, the tool is placed against the edge of the sole and pressed up by the weighted lever, and the machine set on the edge of the sole keeps moving forwards and backwards in contact with the warmed glazer and soon becomes polished.

For paring and finishing the heels we use the shorter table rack and boot-holder shown in Figs. 7, 8, and 9, the centre of the heel being over the centre of the rack, and the boots may be on their lasts or the heel part placed on the iron block g^2, Fig. 8, and held firmly by means of the clamp *j*, the screw *x*, and the presser *y*, jointed to the bracket *z*. The table and holder are placed in a similar machine as that shown in Figs. 10 and 11, and for the glazing or polishing operation the cams a^4 b^4 under the table must be set to cause the forward and backward movements to correspond with the size of the heel. The tool for paring the heel can swivel laterally in a cranked holder in the same manner as that for the sole, but in some cases we joint the holder to the stud which enters the arm lever for enabling the tool to rise and fall, and also to be placed at an angle to suit the style of heel required. One of these tools and holders is shown in Figs. 18 and 19, in which w^4 represents the stud which enters the arm lever, x^4 the cranked holder jointed to it, y^4 the cutter, made of any required shape, and z^4 the guide under the

522 edge of the heel. Before the paring operation takes place the treddle is employed to balance the weighted lever, the arm lever and tool-holder are brought down, and the guide placed under the edge of the heel the same as with the sole, and the weighted lever also presses the guide against the heel part of the boot and, when the machine is set on the cutter, pares the heel in one continuous movement, and then the machine is stopped, but during the paring operation the tool is moved up or down or angular to enable the cutter to shape the heel as desired, but in many cases where the heels are not required to be of fancy shapes the stud in the arm lever may be rigidly fixed to the cranked holder, as in Fig. 12. The steel glazing tool, hardened and polished, is made of the required shape and depth and warmed with gas, and when pressed up

against the heel by the weighted lever and the machine set on the table, and boot keep moving forwards and backwards, and when the heel is polished the machine is stopped by hand.

* * * * * * *

To finish the bottoms of boots and shoes we place a stand upon a table with a boss at right angles, placed sufficiently high to allow the largest-sized boot to turn round. On the top of the stand we place a taper pin or plug of the same size and form as those used in the machines and shown at *v*, Fig. 6. The boss is bored to receive a short shaft, on one end of which we fix another taper pivot or plug, and on the other end a pulley, round which we place a belt or strap in connection with a treddle. By this means we can place a last either in an upright or horizontal position to enable the operative to hold the boot in any position he may desire.

523 DEFENDANTS' EXHIBIT GUBAULT PATENT. W. A. C., Sp'l Ex'r.

Letters patent to Pierre François Gubault, shoemaker, residing at No. 13 Rue Milton, Angers, Empire of France, for the invention of "improvements in machinery for finishing boots and shoes."

Sealed the 11th September, 1868, and dated the 14th March, 1868.

* * * * * * *

Specification in pursuance of the conditions of the letters patent filed by the said Pierre François Gubault in the Great Seal Patent Office on the 14th September, 1868.

* * * * * * *

Now, know ye that I, the said Pierre François Gubault, do hereby declare the nature of the said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement thereof—that is to say:

This invention has for its object improvements in machinery for finishing boots and shoes.

* * * * * * *

For dressing the side edges and preparing them to receive the blacking I employ the cutter marked C in the machine shown at figure 2, sheet 1, and also shown separately on sheet 3. This cutter is also of steel and is carried by a vertical axis, which should be driven at about 1,800 to 2,000 revolutions a minute. The cutter is about $\frac{7}{10}$ths of an inch in thickness or width, so that it would be inconvenient for edges which vary in height if a rest or support, *a b*, which could be raised or lowered at the will of the operator were not also employed so as to increase or diminish the height of the cutter, which is free to act upon the edge. The rest is made circular in order to be able readily to turn the boot around the tool. The up-and-down movement is given to this support by a small crank, *c*, on the axis of a screw worm which communicates motion to the axis of a pinion gearing with a rack on the rest. All these parts being very small, the movement of the rest is extremely gradual, so that

the workman, whilst holding a shoe against the plate or sur-
524 face *a b*, can with one or two fingers turn the crank *c*, and, consequently, raise or lower the rest at pleasure without taking away the shoe from the tool C. This tool C is formed with file-like teeth, as shown by the drawing. After the side edges have been trimmed a small burr is left on the upper edge all round the sole, which is removed by the disc D. This tool, although it is caused to revolve similarly to the tool C, is not in one piece with it; it is fixed above in such manner that a ring of about $\frac{1}{10}$th or $\frac{1}{12}$th of an inch is left around the tool C. This ring is formed with teeth, which in its rotation remove the burr above mentioned.

* * * * * * *

The trimming of the heels being completed, they are afterwards polished by the tool F (figure 3, sheet 2). This polisher is of cast iron and mounted on a horizontal axis, to which a to-and-fro reciprocating revolving motion of about $\frac{1}{12}$th of a revolution is imparted. This motion is given to it by an eccentric, as shown by the drawing. At the end of the axis which carries the polisher F is a slotted crank arm, to which the connecting rod of the eccentric can be attached at any desired distance from the axis, and thus the amount of motion given to the axis can be varied. Ordinarily this motion will amount to about $1\frac{1}{2}$ to $2\frac{1}{2}$ inches for each half turn of the axis of the eccentric. This axis makes 2 to 300 turns a minute. The burnisher F is hollow, there being formed within it a hollow chamber, which is for the purpose of heating the burnisher. At the lower part of the chamber are two holes separated by partition one from the other. One of them, *a b*, is about $2\frac{1}{2}$ inches, and the chamber is heated through this hole; the other hole is about $\frac{1}{2}$ an inch and is the outlet hole. The drawing shows clearly this special arrangement, which I consider to be one of the important features of my invention. The warming of the burnisher is effected either by gas or by a candle or by other means. The heated burnisher F is for the heels of men's boots; a second heated burnisher, marked F^1, is for the heels of ladies' boots. This second burnisher is slightly more rounded than the first, but with the exception of this slight difference it is of the same form and performs the same operations. The trimming of the side edges having been effected by the circular cutter C,
525 they have then to be polished or burnished. For this I employ the tools G H I J, sheet 3. These four heated burnishers, which are variously shaped, are of cast iron or steel and have a rectilinear reciprocating to-and-fro motion imparted to them. This movement is given to them, as is shown at figure 4, sheet 3, by a small connecting rod, the head of which is fixed to a movable stud, which is received in a slot in a crank arm fixed on the driving axis. By this arrangement, as will readily be seen by the drawings, the stroke given to the rod which carries these tools can be varied according to the requirements of the work. The interior of each of these four tools is hollow, so that the tools may be suitably heated in like manner to the burnishers above mentioned, a small hole, *a*, being formed through each of them for the escape of smoke or heated gases. The tools G H serve, as above stated, for burnishing

the side edges, but there are duplicate sets of these tools, so that the workman may employ either one or other of them according to the thickness of the sole to be polished. The tool I is used for shoes which have no heels. The tool J is suitable for polishing some descriptions of soles and also for polishing heels. Three of these tools are shown to be fixed to the rod which forms the tool-carrier. Any other suitable number of tools might, however, be similarly carried. The crank which actuates the tool-carrier makes about 100 to 150 revolutions a minute. On a horizontal axis driven at about 40 to 50 turns a minute I have mounted, as is shown at figure 5, sheet 3, the tools K K¹. The tool K is shown separately on sheet 1. These tools serve as finishing tools for the heels. These two tools are exactly alike. They are, however, placed one with the beads or mouldings on the right of the surface *a b*, and the other with the beads or mouldings on the left. This is done by putting them on the axis in opposite ways. Taken separately these several tools or groups of tools would occupy a considerable amount of space, and thus many makers would be unable to employ them without first being put to great expense for setting them up. I have combined them together on one rectangular table about 10 feet long by 6½ in width, so that by employing two workmen to use the cutters for the heels, one for the cutter for the side edges, two for the heel finishers, four
527 for the finishers for the side edges, and one for the fitting tool ten men can without hindering one another be working around this table. The table is about 3 feet high, and as the driving axes are below the table all accidents are thus avoided, as all the working parts are covered in. The workmen may place their work on the space in the centre of the table. A force of from 2 to 2½ horse power is all that is required for giving motion to all the tools. Without altering the dimensions of the table I can also profit by my method of supporting and driving the tools to adapt to some of the axes various other tools used by bootmakers, such as a brush for removing the blacking pads, for removing the wax and other like tools. As above stated, the arrangement and working of the several parts herein described constitute an entirely new system or combination of apparatus which will be of great value to bootmakers.

Having thus described the nature of my invention and the manner of performing the same, I wonld have it understood that what I claim is the general arrangement of the parts and the tools herein described.

In witness whereof I, the said Pierre François Gubault, have hereunto set my hand and seal this tenth day of September, in the year of our Lord one thousand eight hundred and sixty-eight.

DEFENDANTS' EXHIBIT INGALLS PATENT. W. A. C., Sp'l Ex'r.

To all persons to whom these presents shall come:

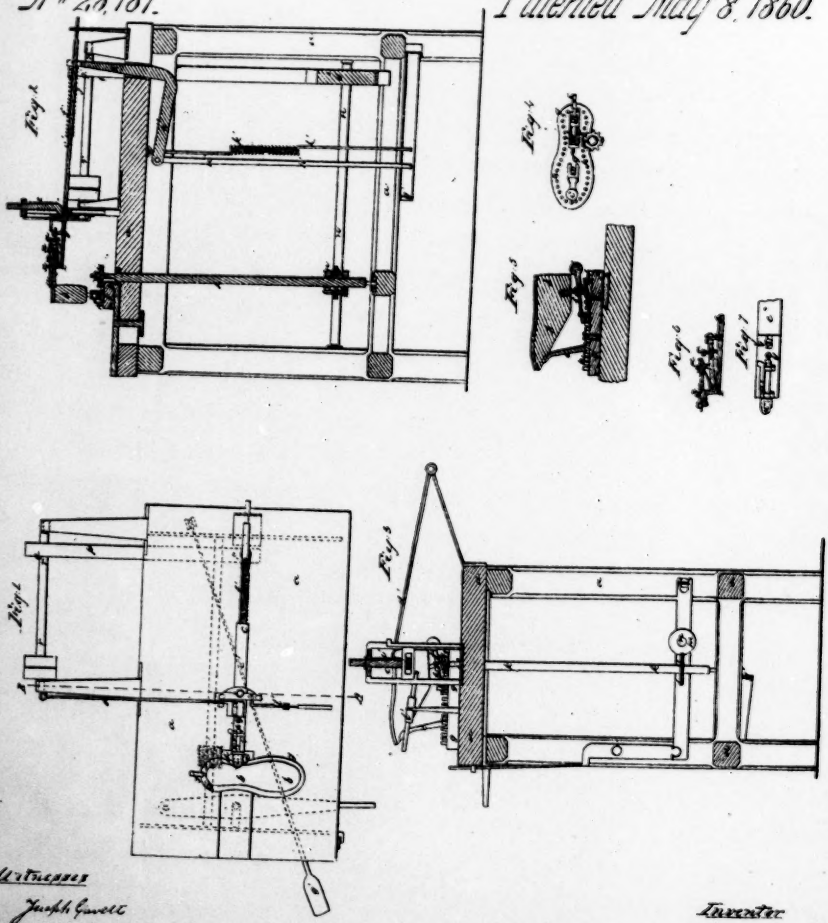
Be it known that I, Elias T. Ingalls, of Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and

No. 233.
U. E. S. Co.
v.
Keith
} p 526.

E. T. Ingalls,

Shoe-Sole Machine,

No. 28,181. Patented May 8, 1860.



Witnesses
Joseph Gavett
Albert W. Brown

Inventor
Elias T. Ingalls

useful improvements in machines for burnishing the edge of the sole and heel of boots and shoes, and that the following description, taken in connection with the accompanying drawings hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements
528 by which my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured by letters patent.

The figures of the accompanying plate of drawings represent my improvements.

(Here follows diagram marked p. 526.)

Fig. 1 is a plan or top view of my improved machine.

Fig. 2 is a central longitudinal vertical section of the same.

Fig. 3 is a transverse vertical section taken in the plane of the line A B, Fig. 1.

Figs. 4, 5, 6, and 7 are views in detail.

The operation of burnishing the edge of the sole and heel of boots and shoes has, previous to my invention, been performed generally by hand labor, requiring a great expenditure of time and skill on the part of the operator.

The present invention consists in an arrangement of mechanical devices whereby the work is effected much more rapidly and accurately than by hand labor; and the essential elements of my new machine are as follows:

First. In subjecting the edge of the sole and heel of the boot or shoe, caused to move, and guided either by machinery or by hand, in one fixed path, and having a firm bearing, to the action of a suitable tool having a vibrating or other proper motion imparted to it in any suitable manner.

Second. In giving such yielding elastic motions to the burnishing tool that it will conform to and bear equally upon all the inequalities and curves both of the edge and top of the sole and heel of the boot or shoe, producing nearly the same manipulations as those of the workman by the ordinary hand method.

Third. In so arranging the tool stock that the tool can be set at any desired angle and thereby be adapted to any style and bevel of edge.

Fourth. So hanging the tool stock that it can turn in its bearings, whereby the tool can conform to the curves and elevations and depressions of the different portions of the sole and heel, and therefore not cut into the same, as would otherwise be the case.

Having thus premised the general features of my new ma-
529 chine and its most essential elements, I will next proceed to describe its construction and operation in detail:

a a a in the drawings represent the supporting frame-work of the machine. *b b* is a boot or shoe placed upon a suitable last, which is held firmly in position by means of a stationary toe rest, *c*, and a sliding piece, *d*, moving in grooved ways *e* and engaging with the last near the heel, as shown. The sliding piece *d* is moved back and

forth by means of a screw, *f*, thereby crowding the boot or shoe against the toe rest or withdrawing it from the same, according to the direction in which the said screw is turned. *g g* is a travelling frame conforming in its general outline to the shape of the sole of a boot or shoe and provided with pins *h h*, &c., that are engaged with a pinion, *i*, on the upper end of a vertical shaft, *k k*, rotated by means of a gear, *l*, and endless screw or worm *m* on a horizontal shaft, *n n*, revolved by a pulley, *o*. The pulley *o* receives its rotation from a band, *p p*, and pulley *q* on the ordinary driving shaft *r r*. The frame *g g* has on its under side a continuous grooved channel, which fits over suitable pins *s s* with or without friction rollers as may be desirable. Thus it will be seen by imparting motion to the machine the boot will be made to travel in a fixed path so as to present every portion of the edge of the sole to any proper tool. *t t* is the tool having a horizontal lip, *u*, that bears upon the top of the sole, and a socket, *v*, in which can be placed a piece of stone, metal, or other suitable material, which bears upon the edge of the sole and can be formed of any desired shape so as to produce any form of moulding thereon. The stone, metal, or other tool can be inserted in or removed from the socket *v* at pleasure, whereby an endless variety of shapes to the edge of the sole can be produced, the tool being held in its socket by any proper means. *w* is the tool stock or shaft placed in bearings *x x* of a frame, *y*, hinged at *z* in such a manner that it can turn in the said bearings and thereby permit the tool to adapt itself to the elevations and depressions of the sole and heel and prevent its cutting into the same, as would otherwise be the case. The tool frame *y*, being hinged at *z*, can be set at any desired angle, so as to be adapted to any bevel or conformation of the edge of the sole, by means of a set-screw, *a'*, being fastened in position by a screw, *b'*. The tool stock and frame are attached to a vibrating bar, *c' c'*, actuated by a connecting rod, *d'*, that receives its motion from a crank on the driving shaft, the said connecting rod being so constructed as to be readily disconnected from the vibrating bar *c' c'* when desired. A vertical, elasting, and yielding pressure is brought to bear upon the vibrating bar *c' c'*, and consequently upon the burnishing tool, by means of a spiral spring, *e'*, arranged as shown in Figs. 2 and 3, and a horizontal or lateral yielding elastic pressure upon the edge of the sole by means of a spiral spring, *f'*, coiled upon the vibrating bar *c' c'*. These lateral and vertical yielding pressures are necessary to be given to the burnishing tool in order that it may adapt itself to and bear uniformly upon the inequalities and curves both of side and top edges of the sole and heel. The lateral pressure can be regulated by the operator by means of a treadle, *g' g'*, acting upon a vertical rod, *h' h'*, and bent forked lever *i' i'* bearing upon the spiral spring *f'*. As will be readily understood, *k'* is a spring for retracting the treadle. The vertical pressure can be regulated by a hand lever, *l'*, acting upon the vibrating bar *c' c'*.

It will be evident that in lieu of a vibrating burnishing tool a revolving tool so formed as to have the requisite bearings upon the top and side edges of the sole and heel and made to revolve in any

proper manner can be used, and a similar device can also be employed with the top-edge bearing for producing ornamental lines or configurations or "beadings" upon the side edge of the sole, it being, however, essential in all cases that the boot or shoe shall travel in one fixed path.

The effect aimed at can also be tolerably well attained by the use of a stationary burnishing tool held and arranged substantially as above described, while the boot or shoe is made to travel in a fixed path, as hereinabove stated. The burnishing tool can be heated, if desired, with steam by making the vibrating bar hollow, or of one or more steam pipes through which steam can be conducted to the hollow tool.

In my improved machine the actuating devices are so arranged as to readily be thrown out of gear, whereby the boot or shoe can be instantly stopped in its course while the burnishing tool keeps
531 its motion, which is often desirable where one part requires more burnishing than others; and also the motion of the burnishing tool can be stopped while the motion of the boot or shoe continues, a horizontal revolving wheel with figures formed therein being substituted for the vibrating tool, in which case no vibrating motion will be required, the wheel simply revolving by the travelling of the boot or shoe and forming "beadings" on the edge thereof.

Having thus described my improvements, I shall state my claims as follows:

I do not claim, broadly, burnishing the edge of the sole and heel of a boot or shoe by the action of a tool moved by machinery while the boot or shoe is presented to the said tool by the hand, but—

What I do claim as my invention and desire to have secured to me by letters patent is—

First. Subjecting the edge of the sole and heel of the boot or shoe, caused to travel and guided in a fixed path either by machinery or by hand, to the action of a burnishing tool, either held stationary or having a vibrating or other proper motion communicated to it by any suitable arrangement of mechanical devices, as set forth.

Second. Producing an elastic, yielding motion to the burnishing tool, both in a vertical and lateral direction, by means substantially as described.

Third. So arranging the tool stock that the tool can be set at any desired angle, so as to conform to any shape and bevel of the edge of the sole and heel, as described.

Fourth. So hanging the tool stock that it can turn in its bearings, whereby the tool will conform to the curves and elevations and depressions of the different portions of the sole and heel, and therefore prevent its cutting into and defacing the same, as would otherwise be the case.

ELIAS T. INGALLS.

Witnesses:
JOSEPH GAVETT.
ALBERT W. BROWN.

532 DEFENDANTS' EXHIBIT HELMS FILE WRAPPER AND CONTENTS. W. A. C., Sp'l Ex'r.

BOSTON, *December* 3, 1875.

Honorable Commissioner of Patents.

SIR: I send herewith model and drawings and first Government fee application of Charles H. Helms (assignor to Dean Peabody, trustee), burnishing machine.

Petition, specification, and oath have been sent to Poughkeepsie for inventor's signature and will be forwarded by him.

Very respectfully, J. E. MAYNADIER,
Per K.

(*Petition.*)

To the Commissioner of Patents:

Your petitioner, a resident of Poughkeepsie, State of New York, prays that letters patent may be granted to him for the invention set forth in the annexed specification, and he hereby appoints James E. Maynadier, of the city of Boston, State of Massachusetts, his attorney, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

CHARLES H. HELMS.

I assent to the above.
DEAN PEABODY, *Trustee.*

(*Specification.*)

To all whom it may concern:

Be it known that I, Charles H. Helms, of Poughkeepsie, in the State of New York, have invented an improved edge-setter,
533 of which the following is a specification, reference being had to the accompanying drawings making a part hereof:

My machine is extremely simple, and consists of a head or standard carrying a tool-holder holding a tool for setting or burnishing the edges of the soles of boots and shoes, and a finger rest to aid the workmen in holding the edge up to the tool.

[Insert amendment filed January 22, 1876.]

The drawings represent the best form of my machine, A being the head, B the tool-holder, C the tool, and D the finger rest. The tool-holder B is fast to a slide, F, which is reciprocated by an eccentric pin, *a*, on the shaft G. This pin, to prevent wear, is journalled in the small slide *b*, which reciprocates in a slot in the slide F. This slide F is mounted in ways formed by the parts *c* and *d* of the head, as shown in the drawings. The part *c* of the head is in practice made adjustable, so that it can be pressed closely against the vertical

portions of the slide F. The finger rest D is a hook-shaped piece secured to the head near the tool, as shown in the drawings. For convenience it is mounted upon a tang which is held by a set-screw. It should be made of some non-conductor of heat or else be wrapped with some non-conducting wrapper. The tool is heated by means of steam, which enters the upper part of the head by means of pipes, g g^1, one an inlet, the other an outlet, pipe. The head is cored out for this purpose, as indicated in the drawings, f being the steam space. Steam is not essential, as the friction of the tool heats it considerably, but is desirable for the best work.

The tool-holder is backed up by a spring, h. The tool may be in one piece with a tang which fits the holder, or may be secured in a proper socket at the lower part of this tang. In practice the latter mode is used, as shown in Figs. 3 and 4.

The operation is as follows: The workman holds the shoe firmly in his hands, and thus presents the edge to be burnished to the tool, which reciprocates with great rapidity; about eighteen hundred times per minute I find gives the best results. The workman passes the edge up against the tool (2) and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger rest D, especially when burnishing the
534 corners of the toes. A little experience is necessary to enable the workman to use the machine to great advantage, but a skilled workman can do a very large quantity of work second to none in quality.

[3] The finger rest D is the main feature of my invention, all the other points of novelty in my machine relating to new combinations of old elements.

[Erase and insert amendment filed January 22, 1876.]

What I claim as my invention is—

First. In a burnishing machine, the finger rest D, constructed and operating substantially as described.

[Erase and insert [1], January 7, 1876.]

Second. The combination of the finger rest D, the burnishing tool, and the elastic tool-holder B, as set forth.

Third. The burnishing tool, the tool-holder B, the slide F, and head A, all combined together as specified.

[Erase and insert 2.]

CHARLES H. HELMS.

Witnesses:
ALLISON BUTTS.
CLARENCE VAIL.

Words and sentences enclosed between rules erased in copy.

STATE OF NEW YORK, }
County of Dutchess. }

Charles H. Helms, the above-named petitioner, being duly sworn, deposes and says that he is the original and first inventor of the improvement described and claimed in the foregoing specification; that he does not know and does not believe that the same was ever before known or used; that he is a citizen of the United States and a resident of Poughkeepsie.

CHARLES H. HELMS.

Sworn to and subscribed before me this sixth day of December, 1875.

ALLISON BUTTS,
Notary Public in and for Dutchess County.

535 STATE OF NEW YORK, }
County of Dutchess, } *ss:*

I, Andrew C. Warren, clerk of the county of Dutchess and of the county courts of said county and of the supreme court of the State of New York in and for said county, the same being courts of record, do hereby certify that Allison Butts, before whom the annexed deposition was taken, was at the time of taking the same a notary public in and for the county aforesaid, dwelling in said county, duly commissioned, sworn, and authorized to administer oaths to be used in any court in said State and for general purposes, and that his signature thereto is genuine, as I verily believe.

In testimony whereof I have hereunto set my hand and affixed the seal of said court and county this sixth day of December, A. D. 1875.

[SEAL.] A. C. WARREN, *Clerk.*

Examiner's Room No. 95.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *December* 13, 1875.

Charles H. Helms, care James E. Maynadier, 33 School St., Boston, Mass.

Edge-setters. December 7, 1875.

In the matter above cited the first claim is anticipated in patent of B. J. Tayman, March 11, 1873, No. 136,790, class 16, sole machines, and the third claim in the patents of Vivian K. Spear, December 10, 1867, No. 72105, and C. H. Helms, November 10, 1874, No. 156,732, class 16, heel machines.

The first and third claims are rejected.

JOHN D. HYER, *Assistant.*

J. P. CHAPMAN, *Examiner.*

BOSTON, *January* 5, 1875.

Honorable Commissioner of Patents.

SIR: In view of office letter of December 13, 1875, I hereby
536 amend my application—edge-setter, filed December 7, 1875—as follows:

[1] (1) By erasing the first clause of claim and substituting the following:

"First. In combination with the burnishing tool and the rest for the face of the sole, the finger rest D, substantially as described."

[2] (2) By erasing the third clause of claim and substituting the following:

"Third. The burnishing tool, its holder B, slide F, ways *c* and *d*, shaft G, and pin *a*, all combined together as specified."

CHARLES H. HELMS,
By J. E. MAYNADIER,
His Attorney.

Examiner's Room No. 95.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *January* 11, 1876.

Charles H. Helms, care James E. Maynadier, 33 School St., Boston, Mass.

Edge-setter. December 7, 1875.

Attention is called to the fact that the finger rest in the above-cited case is stated to be the main feature of the alleged invention. A rest for the same purpose is shown in Tayman's patent, and the other elements claimed in combination have been shown by the references to be old separately, and if the finger rest performs any new function in this instance in combination with the tool and holder here used it should be clearly stated.

It is not understood what is meant by the words in the first claim now presented, viz., "the rest for the face of the sole." Additional amendment is therefore necessary before the case can be further considered.

JOHN D. HYER, *Assistant.*

J. P. CHAPMAN, *Examiner.*

537 BOSTON, *January* 19, 1876.

Honorable Commissioner of Patents.

SIR: In view of office letter of January 11, 1876, I hereby amend my application for patent for improved edge-setter, filed December 7, 1875, as follows, viz:

(1) By inserting immediately after the words "to aid the workman in holding the edge up to the tool" the words "and the face of the sole against the rest which is just below the burnishing part of the tool."

[Insert 1.]

(2) By inserting immediately after the words "the workman presses the edge up against the tool" the words "and the face of the sole against the surface which projects below the tool."

[Insert 2.]

(3) By erasing the paragraph immediately before the words "What I claim as my invention is" and substituting therefor the following:

"The combination of the finger rest D with the burnishing tool and the rest for the face of the sole is the main feature of my invention; all the other points of novelty in my machine also relate to new combinations of old elements."

[Insert 3.]

CHARLES H. HELMS,
By J. E. MAYNADIER,
His Attorney.

BOSTON, *February* 4, 1876.

Honorable Commissioner of Patents.

SIR: Enclosed please find check for $20, final Government fee, application of Charles H. Helms, edge-setter, allowed February 1, 1876, assigned to Dean Peabody, trustee.

Very respectfully, J. E. MAYNADIER,
Per K.

538 16 1875. $\frac{1627}{104}$
No. 173,284. Chapman.
Assigned.

Charles H. Helms,
Of Poughkeepsie,
County of ——,
State of New York.

Edge-Setters.

Rec'd Dec. 6, 1875.
Petition " 7, "
Affidavit " " "
Specification " " "
Drawing " 6, "
Model " " "
Cert. dep.
1 cash, $15, Dec. 6, 1875.
Add'l fee cert.
1 " " cash, $20, February 5, 1876.
Examined Jan'y 31, 1876. Chapman, ex.
2 issue Feb'y 1, '76. Knight.
3 patented Feb'y 8, 1876.
Circular, Feb. 1, 1875.

JAS. A. MAYNADIER,
33 *School Street, Boston, Mass.*

C. H. HELMS.

SOLE-EDGE BURNISHING-MACHINE.

No. 173,284. Patented Feb. 8, 1876.

Fig. 4.

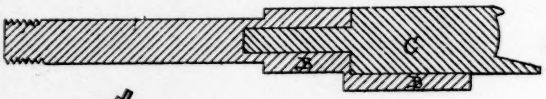


Fig. 3.

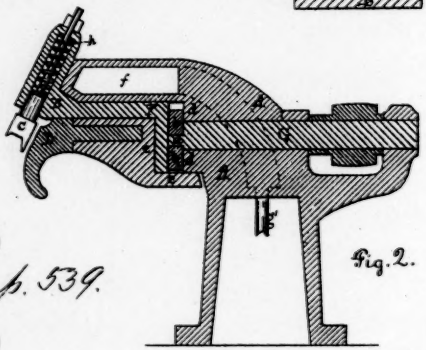


Fig. 2.

No. 233. U.S.C. p. 539. Keith

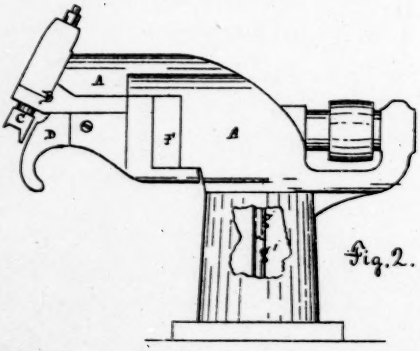


Fig. 2.

Chas. F. Sleeper.
J. E. Knop.

Charles H. Helms
by J. E. Maynadier
his atty.

1875.

Contents.

Application, 2 papers.
1 rejection, Dec. 13, 1875.
2 am'd't, Jan. 7, 1876.
3 letter, Jan'y 11, 1876.
4 amendment, Jan. 22, '76.
Title :
Improvement in sole-edge
Burnishing machines.
16.

540 UNITED STATES PATENT OFFICE.

CHARLES H. HELMS, of Poughkeepsie, New York.

Improvement in Sole-Edge-Burnishing Machines.

Specification forming part of Letters Patent No. 173,284, dated February 8, 1876; application filed December 7, 1875.

To all whom it may concern :

Be it known that I, Charles H. Helms, of Poughkeepsie, in the State of New York, have invented an improved edge-setter, of which the following is a specification, reference being had to the accompanying drawings making a part hereof.

My machine is extremely simple, and consists of a head or standard carrying a tool-holder, holding a tool for setting or burnishing the edges of the soles of boots and shoes, and a finger-rest to aid the workman in holding the edge up to the tool, and the face of the sole against the rest, which is just below the burnishing part of the tool.

(Here follows diagram marked p. 539.)

The drawings represent the best form of my machine, A being the head, B the tool-holder, C the tool, and D the finger-rest. The tool-holder B is fast to a slide, F, which is reciprocated by an eccentric pin, *a*, on the shaft G. This pin, to prevent wear, is journaled in the small slide *b*, which reciprocates in a slot in the slide F. This slide F is mounted in ways formed by the parts *c* and *d* of the head, as shown in the drawings. The part *c* of the head is in practice made adjustable so that it can be pressed closely against the vertical portions of the slide F. The finger-rest D is a hooked-shaped piece secured to the head near the tool, as shown in the drawings. For convenience it is mounted upon a tang, which is held by a set-screw. It should be made of some non-conductor of heat, or else be wrapped with some non-conducting wrapper. The tool is heated by means of steam, which enters the upper part of the head by means of pipes *g g'*, one an inlet, the other an outlet pipe. The head is cored out for this purpose, as indicated in the drawings, *f* being the steam-space. Steam is not essential, as the friction of the tool heats it

considerably, but is desirable for the best work. The tool-holder is backed up by a spring, *h*. The tool may be in one piece, with a tang which fits the holder, or may be secured in a proper socket at the lower part of this tang. In practice the latter mode is used, as shown in Figs. 3 and 4.

The operation is as follows: The workman holds the shoe firmly in his hands, and thus presents the edge to be burnished to the tool, which reciprocates with great rapidity—about one thousand eight hundred times per minute, I find, gives the best results. The workman passes the edge up against the tool, and the face of the sole against the surface which projects below the tool, and gradually moves the shoe so as to bring all parts of the edge to its action, steadying the shoe by the aid of the finger-rest D, especially when burnishing the corners of the toes. A little experience is necessary to enable the workman to use the machine to great advantage, but a skilled workman can do a very large quantity of work second to none in quality.

The combination of the finger-rest D with the burnishing-tool, and the rest for the face of the sole, is the main feature of my invention. All the other points of novelty in my machine also relate to new combinations of old elements.

What I claim as my invention is—

1. In combination with the burnishing-tool and the rest for the face of the sole, the finger-rest D, substantially as described.

2. The combination of the finger-rest D, the burnishing-tool, and the elastic tool-holder B, as set forth.

3. The burnishing-tool, its holder B, slide F, ways *c* and *d*, shaft G, and pin *a*, all combined together as specified.

CHARLES H. HELMS.

Witnesses:
ALLISON BUTTS.
CLARENCE VAIL.

542 UNITED STATES PATENT OFFICE.

NATHANIEL S. THOMPSON, of Stoneham, Massachusetts.

Improved Shoe-Edge-Burnishing Machine.

Specification forming part of Letters Patent No. 50856, dated November 7, 1865.

To all whom it may concern:

Be it known that I, Nathaniel S. Thompson, of Stoneham, in the county of Middlesex and State of Massachusetts, have invented an improvement in machines for burnishing the edges of boots and shoes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in combining and arranging a burnishing-wheel, of iron or any other suitable metal, with a mova-

N. S. Thompson,

Shoe Sole Machine.

No. 50,856. Patented Nov. 7, 1865.

No. 233.
U. S. A. Co. } p. 341
v.
Keith.

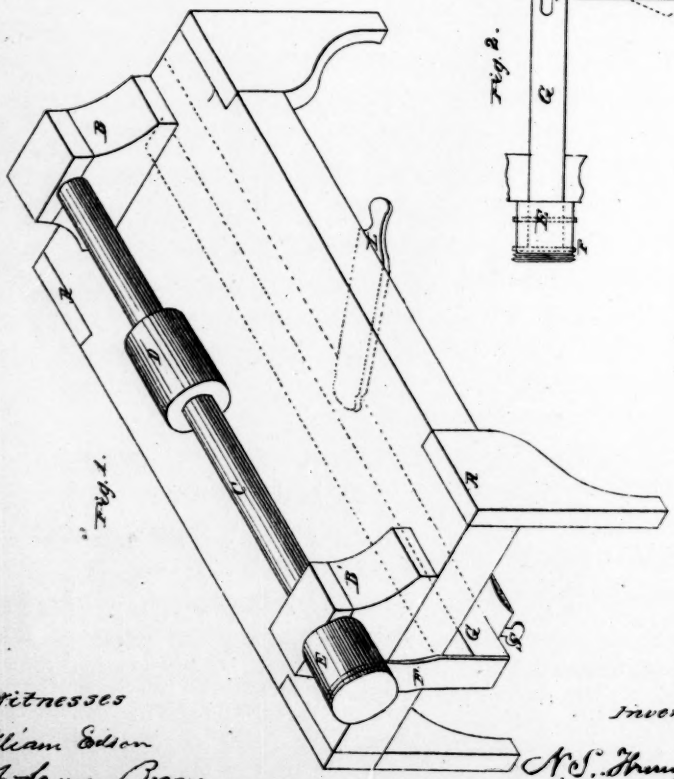


Fig. 1.

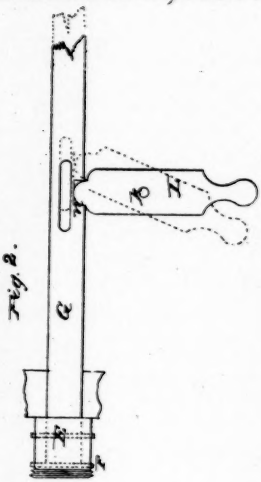


Fig. 2.

Witnesses
William Edson
A. Leun Perry

Inventor.
N. S. Thompson

bie adjustable guide in such a manner that the whole shall form a machine by which the edge of a heel, or thick or thin sole of a boot or shoe, may be burnished as well as the same is done by hand, and much more rapidly.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

(Here follows diagram marked p. 541.)

In the drawings, Figure 1 is an isometrical view of the machine entire. Fig. 2 is a plan showing the lever L and slide G, upon which is fastened the guide F, the whole showing in what manner the guide F is adjusted by the lever L.

A A represent the stand or table upon which the machine is fastened.

B B′ are housings in which the shaft C runs.

E represents the burnishing-wheel, which is made fast to the shaft C.

F is a movable guide attached to the slide G, and operated by the lever L, (shown more fully in Fig. 2.) The guide is held in any desired position by means of the set-screw S.

I have tried many methods for arranging a movable guide or its equivalent. For instance, the guide may be a collar around the burnishing-wheel, movable by means of a screw or lever, or the guide itself may be stationary, and the burnishing-wheel may be made to slide in and out. These methods are all good, but the one that I have adopted in my model is one of the cheapest, and is, perhaps, as good as any equivalent mechanical expedient.

In operating this machine it is simply necessary to adjust the guide to the point required by the thickness of the edge of the sole or heel to be burnished, and to hold the edge of the shoe firmly and steadily against the burnishing-wheel, moving the shoe along as the edge becomes burnished.

What I claim as my invention, and desire to secure by letters patent of the United States, is—

The combination of the adjustable-guide F with the burnishing-wheel E, or the mechanical equivalent of such combination, substantially as and for the purpose specified.

N. S. THOMPSON.

Witnesses:

WILLIAM EDSON.

A. HUN BERRY.

544 UNITED STATES PATENT OFFICE.

DANIEL MCLAUGHLIN, of Baltimore, Maryland.

Improvement in Machines for Trimming the Soles of Boots and Shoes.

Specification forming part of Letters Patent No. 113,546, dated April 11, 1871.

To all whom it may concern:

Be it known that I, Daniel McLaughlin, of the city of Baltimore and State of Maryland, have invented a machine for trimming the edges of boot and shoe soles, of which the following is a specification, reference being had to the accompanying drawing.

The object of my invention is to facilitate, cheapen, and perform with greater accuracy than has been done heretofore the operation of trimming the edges of boot and shoe soles; and the invention consists, first, in arranging to a table or frame, suited to the purpose, two upright revolving spindles, the ends or heads of which revolve through the top of said table (the ends or heads of these spindles are fitted with collars or rings, and between these collars or rings are held cutters or bits of any desirable conformation or size for the purpose of trimming the edges of boot and shoe soles); second, in the arrangement of adjustable guards or guides for the purpose of regulating the cut of the cutters or bits, and to prevent the nicking or cutting of the boot or shoe upper or thread in the operation of trimming the edges of the sole; and, third, in an adjustable rest for raising or lowering the work to the cutters when the soles to be operated upon vary in thickness.

In the accompanying drawings, Figure 1, Sheet 1, is a perspective view of my machine complete; Figs. 2 and 3, Sheet 2, are details of the same; Figs. 4 and 5, Sheet 2, are top views of the guards or guides detached.

(Here follows diagram marked p. 543.)

A, Fig. 1, Sheet 1, is a table of special construction, to the frame of which are arranged two upright revolving spindles, B and C, with their ends passing up through the top of the table. To the end of each of said spindles are attached cutters or cutting-heads D and E, for the purpose of trimming the edges of boot and shoe soles. These cutting-heads vary somewhat in their conformation, for the reason that cutting-head D is for the purpose of trimming the edge of the front sole or the sole proper, while cutting-head E is for the purpose of trimming that portion of the sole forming the shank of the boot or shoe.

The construction of cutting-heads D and E, and their arrangement to spindles B and C, will be readily understood by reference to Figs. 2 and 3, Sheet 2, similar letters indicating the same parts in Fig. 1, Sheet 1. These cutting-heads consist of collars or rings fitted to the ends of spindles B and C, and between said collars or

2. Sheets. Sheet. 1.

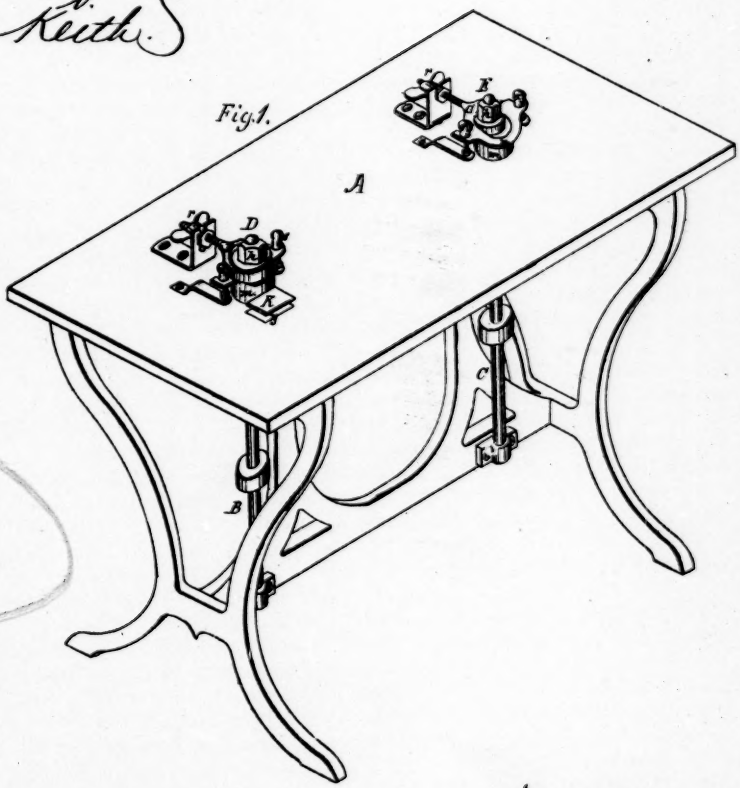
D. McLaughlin,

Sole Machine.

No. 113,546. Patented Apr. 11. 1871.

No. 233.
U.E.S. Co. } p. 543.
Keith.

Fig. 1.



Witnesses:
C. H. Slicer
Chas. J. Wiener

Inventor:
Daniel McLaughlin

rings are fixed bits or cutters, *i i*. These collars and bits are secured to their place by nuts *h*. The variation in the conformation of these two cutting-heads is confined to their lower collar or base, the collar or base of cutting-head E having its upper edge more rounding than that of cutting-head D, as shown at *m*, Figs. 2 and 3. This variation in these cutting-heads is for the reason hereinbefore mentioned. In every other respect their construction and arrangement are identical with each other.

F and G, Figs. 2 and 3, Sheet 2, are guards or guides encircling the cutting-heads, and are for the purpose of regulating the cut of the cutting-heads, and to prevent nicking or cutting of the boot or shoe upper or thread in the operation of trimming the edges of the soles. These guards or guides, it will be seen, are so constructed and arranged as to be readily adjustable, both horizontally and vertically; horizontally, by means of screw and set-nuts, as seen at *r*, and vertically by means of set-screws *s*. The adjustability of these guides or guards is of great importance, as it allows the same cutting-heads and guards to be used in trimming all sizes of boot or shoe soles.

Guards or guides F and G differ materially from each other at *n*, the point at which the sole to be trimmed is brought in contact with them. At this point guide or guard F has a lip or shoulder formed at right angles to its lower edge, while guard or guide G has no such lip or shoulder, but has its edge depressed or curved downward. This difference in the construction of the front of guide or guard G is made necessary owing to the great curvature of that portion of the sole forming the shank, and upon which this guide is intended to operate.

Arranged to table A, Fig. 1, Sheet 1, at or near the base of cutting-head D, is an adjustable rest or platform, K, upon which
545 the bottom of the boot or shoe is rested while the edge of the sole is being trimmed, and by means of its adjustability the work is raised or lowered to the cutters, as may be required where the soles to be operated upon vary in thickness. The device for adjusting this rest or platform is arranged beneath the top of the table. The stem or support of the platform, passing through a sleeve in the top of the table is held and regulated by a set-screw, as seen at *y*, Fig. 2, Sheet 2.

The rest or platform K is only used in connection with the cutting-head D in the operation of trimming the front sole. Its use is dispensed with in trimming the shank portion.

The construction of my machine for trimming the edges of boot and shoe soles is so simple, that the manner of operating it will readily present itself, and is as follows: By means of steam or other power, applied to its spindles, the cutting-heads are caused to rotate rapidly, say at the rate of thirty-five to thirty-six hundred revolutions per minute. The edge of the boot or shoe sole is then presented to the cutting-heads, when the operation of trimming is quickly performed with accuracy of finish and safety to the boot or shoe upper, heretofore unknown in the work of trimming by hand-labor.

This machine, with the aid of a man and boy, will trim the edges of the soles of eight hundred pairs of boots or shoes per day, the work of nine or ten men when done by hand-labor.

I claim as my invention—

1. The revolving cutting-heads D and E, arranged with guides or guards F and G, substantially as and for the purpose herein set forth.

2. The revolving cutting-heads D and E, and guides or guards F and G, in combination with rest or platform K, substantially as and for the purpose herein described.

DANIEL McLAUGHLIN.

Witnesses:
C. H. SLICER.
CHAS. J. WISNER.

547 UNITED STATES PATENT OFFICE.

LOUIS COTÉ, of Saint Hyacinthe, Canada.

Improvement in Machines for Trimminy and Burnishing the Soles of Boots and Shoes.

Specification forming part of Letters Patent No. 135,694, dated February 11, 1873.

To all whom it may concern:

Be it known that I, Louis Coté, of Saint Hyacinthe, of the Province of Quebec, of the Dominion of Canada, have invented a new and useful improvement in machinery for trimming or burnishing the edge of a sole or that of the heel thereof, as circumstances may require; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

(Here follows diagram marked p. 546.)

Figure 1 is a side elevation, and Fig. 2 a vertical and longitudinal section, of my machine. Fig. 3 is a side view, and Fig. 4 an end view, of its burnishing-sleeve. Fig. 5 is a side view, and Fig. 6 is an end view, of its cutting or rasping sleeve.

The first part of my invention relates to a separate rasping or burnishing sleeve, a clamping-guide, and an arbor, all being arranged, constructed, and combined substantially as hereinafter described, and as represented in the drawing. The second part of the invention relates to an adjustable gage, its operative screw, and fork, arranged and combined with the rasping or burnishing sleeve, the guide, and the arbor, all in manner and to operate essentially as specified. The third part of my invention relates to the adjustable gage provided with recesses to receive the teeth of the rasping or burnishing sleeve, in order to prevent such sleeve from revolving on

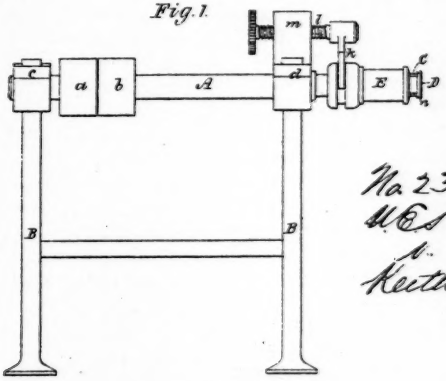
546

L. COTE.

Machines for Trimming and Burnishing the Soles of Boots and Shoes.

No. 135,694. Patented Feb. 11, 1873.

Fig. 1.



No 233
U.S. Co.
p. 546.
Keith

Fig. 2.

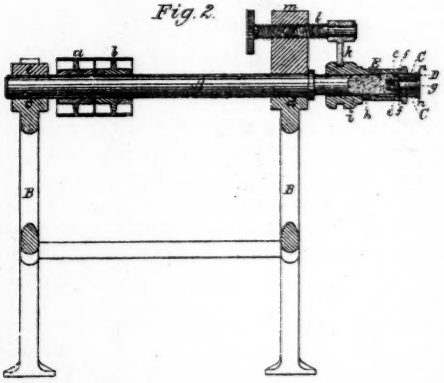


Fig. 3. Fig. 4. Fig. 5. Fig. 6. Fig. 7. Fig. 8. Fig. 9. Fig. 10.

Fig. 11.

Witnesses.
J. W. Piper.
L. N. Miller.

Louis Cote'
by his attorney
R. Riley

and independently of the arbor so as to revolve the clamp-guide and loosen the screw thereof.

In the drawing, A denotes an arbor or shaft furnished with a pair of fast and loose pulleys, *a b*, and supported in boxes *c d* upheld by a suitable frame, B. The arbor projects beyond one end of the frame, and at or near its outer end is turned down to a shoulder, *e*, to receive upon the part *f* so reduced the burnishing or rasping sleeve C, which encompasses such part *f* and rests at one end against the shoulder *e*. The sleeve C is a short tube of steel, having either rasping or cutting or burnishing teeth or projections upon its outer surface or periphery. The clamping-guide D, shown in end views in Figs. 7 and 8, in side view in Fig. 10, and in longitudinal section in Fig. 9, is inserted in and fitted to the bore of the sleeve C without extending quite to the adjacent end of the arbor, a clamp-screw, *g*, arranged in the bore of the guide D and screwed into the arbor, serving to hold the guide, and by means of it the sleeve, to the arbor, so as to be revolved by it when it may be in revolution. This method of making the sleeve C and the clamping-guide D admits of the ready removal of either from the arbor for repair, or for the substitution of others of like kind as occasion may require. Furthermore, there is upon the arbor and encompassing it another sleeve or adjustable gage, E, it being a tube fitted to slide upon the arbor and the sleeve C, lengthwise thereof. A stud, *h*, extends from the gage E into a short groove, *i*, made in the arbor longitudinally, the same causing the gage E to revolve with the arbor. The gage E is also grooved transversely to receive a fork, *k*, pivoted to a screw, *l*, screwed into and through a projection, *m*, elevated on or making part of the frame.

On revolving the screw the gage may be moved either nearer to or further from the annular lip *n* of the clamping-guide, as the thickness of a sole to be trimmed or burnished on its edge may require, and this while the machine may be in operation.

In order to relieve the clamp-screw from any tendency to be unscrewed from the arbor by the rasping or burnishing sleeve while in revolution and pressed against a sole, the gage E is formed with recesses *o* arranged with respect to its bore, as shown in end view of it in Fig. 11. The sleeve-teeth or burnishing-projections, extending into these receivers, will cause the sleeve to revolve with the gage and the arbor. Thus it will be seen that whichever way the arbor may be revolved there will be no tendency of the sleeve to revolve the clamp-guide so as to loosen the clamp-screw. The gage, therefore, besides performing the function of a gage, serves another purpose, as explained.

This little machine has been found to be of great advantage or utility. By the arrangement of the gage E, the rasping or burnishing sleeve, and the guide together, and so as to extend on the arbor beyond one end of the frame in manner as shown, a workman can readily present to them a shoe or boot to be trimmed or burnished on its sole-edge, and, while holding it, can turn it or move it as may be necessary to effect the proper reduction or bur-

548

nishing of its edge, the guide-lip *n* being at the time inserted in the groove or space between the sole and the upper.

I make no claim to the burnishing-machine described in the United States patent No. 127,904, in which two or more different "setting-tools" are employed, one being for the shank-edge and the other being for the thicker parts of a sole.

In my machine I make use of but one burnishing-tool with an adjustable gage. Furthermore, there is in the said patented machine no separate rasping or burnishing sleeve and a clamping-guide like the sleeve C and guide D as in my machine.

By having the sleeve C separate, as described, it may be removed and another of greater or less length may be substituted, or a new one be readily applied in its place when it may be worn or unserviceable; therefore

I claim as my invention as follows, viz:

The adjustabla gage E, provided with the recesses *o* or the equivalent thereof, in combination and arranged with the rasping or burnishing-sleeve C, the clamping-guide D, arbor A, and clamp-screw, all substantially as specified.

LOUIS COTÉ.

Witnesses:
R. H. EDDY.
J. R. SNOW.

551 UNITED STATES PATENT OFFICE.

BENJAMIN J. TAYMAN, of Philadelphia, Pennsylvania.

Improvement in Machines for Trimming Soles of Boots and Shoes.

Specification forming part of Letters Patent No. 136,790, dated March 11, 1873.

To all whom it may concern:

Be it known that I, Benjamin J. Tayman, of the city of Philadelphia and State of Pennsylvania, have invented certain improvements in machines for trimming shoe soles and welts and burnishing the soles, of which the following is a specification:

My invention consists of a machine which is provided with a revolving shaft having cutters for trimming the edges of shoe soles and welts, and a wheel for burnishing the edges of the soles. The shaft is held securely in either a horizontal or vertical position, to suit the work to be done, and is capable of being changed from one position to the other while running, thus preventing loss of time in the adjustment.

The peculiar construction of the machine is hereinafter fully described.

(Here follow diagrams marked pp. 549 & 550.)

Figure 1 is a plan view of the machine. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation, in which a shoe is seen

549

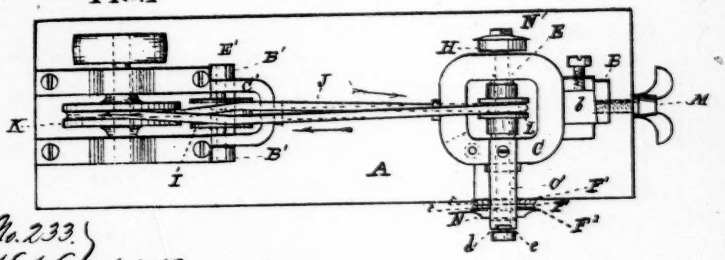
2 Sheets--Sheet 1.

B. J. TAYMAN.

Machines for Trimming Soles of Boots and Shoes.

No. 136,790. Patented March 11, 1873.

FIG. 1



No. 233. W.E.S.Co. Keith } p. 549

FIG. 2

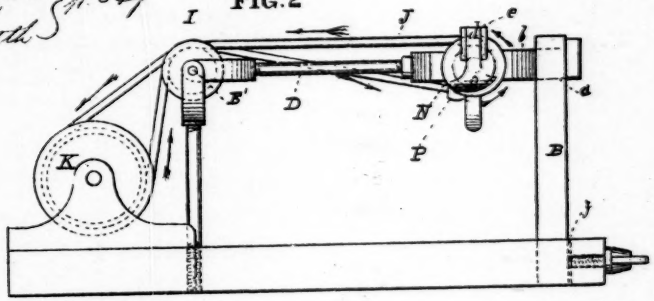


FIG. 3

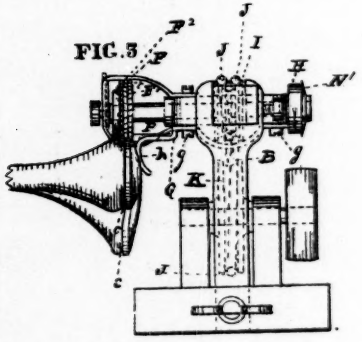


FIG. 4

FIG. 5

FIG. 6

FIG. 7

FIG. 8

FIG. 9

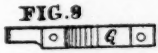


FIG. 10

WITNESSES

Thomas J. Bewley

Isaac Rindge

INVENTOR

Benjamin J. Tayman

By His Attorney

Stephen Ustick

550

2 Sheets--Sheet 2.

B. J. TAYMAN.

Machines for Trimming Soles of Boots and Shoes.

No. 136,790. Patented March 11, 1873.

No. 233
M.E.S. Co } p. 550
Keith

FIG. 11

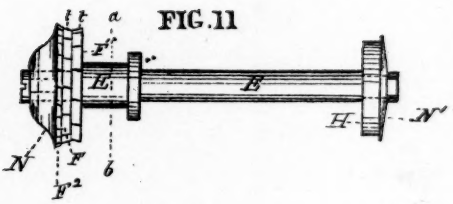


FIG. 12

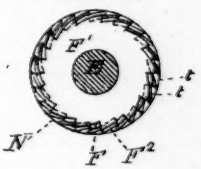


FIG. 13 FIG. 14

WITNESSES.

Thomas J. Bewley

Joseph S. Graham

INVENTOR.

Benjamin J. Tayman

By His Attorney

Stephen Ustick

in position for the trimming of the sole and welt. Figs. 4 and 5 are top and edge views of the rest P. Figs. 6, 7, and 8 are top, side, and edge views of the guide O. Figs. 9 and 10 are top and edge views of the finger-support of Q. Fig. 11, sheet No. 2, is a side view of the shaft E, having on one end cutters F and F^1 for trimming the edge of the sole, a cutter, F^2, for trimming the welt, and a circular guide, N; and on the other end a burnisher, H, and a guide, N′, on an enlarged scale. Fig. 12 is a cross-section of the shaft E at the dotted line *a b* of Fig 11. Figs. 13 and 14 are edge and face views of the guide N.

Like letters in all the figures indicate the same parts.

A is the bed-plate, which has an upright, B, at its front end provided with a slot, *a*, in which the square part *b* of the swivel C is supported. The swivel C′ is connected to the swivel C by means of the rod D, which has a screw connection with the heads, so as to admit of their turning freely thereon. The swivel C is provided with a revolving shaft, E, carrying circular cutters F and F^1 for trimming the edge of the sole, and a like cutter, F^2, for trimming the welt on one end, and a circular burnisher, H, and guide N′ on the other end. The front edges of the teeth *t* of the cutters F and F′ have a forward inclination toward the outer faces of the cutters for the purpose of producing an inwardly drawing cut to prevent leaving a feather-edge on the corners of the edge of the sole. The cutter F is thinner than the thinnest sole of shoes to always insure the combined action of both cutters, thus preventing the formation of a feather-edge on the outer corner of the sole. The outer cutter F^1 is sufficiently thick to project over the thickest sole, and thus secure a clean cut. The swivel C′ is provided with a revolving shaft, E′, whose journals are supported by the forked upright B′. On the shaft is a double pulley, I, with which is connected the band J, which connects also with the driving grooved wheel K and the pulley L on the shaft E for revolving the cutters F, F^1, and F^2, and burnisher H. The upright B is adjusted so as to elevate or depress the swivel C by means of a vertical slot, *z*, in the bed-plate, and the tightening-screw M. N is a circular guide on the shaft E. It turns loosely on the shaft so as to roll in the depression *c* formed by the junction of the sole and upper of the shoe, as seen in Fig. 3, to prevent friction and consequent injury to the leather. N′ is a loose guide in combination with the burnisher H. In connection with said guide N there is a gage, O, seen in detail in Figs. 6, 7, and 8, which presses lightly upon the upper to assist in keeping the shoe in its normal position while the sole is being trimmed and to prevent said guide N cutting the stitches. It is connected with the stationary plate O′, the inner end of which is secured to the swivel C. The guide has a vertical adjustment by means of the connection of the shank *d* with the groove *e* in the front end of the plate O′. P is a rest, shown in detail in Figs. 4 and 5, which is fastened by means of a screw to the swivel C. The object of this rest is to prevent the cutter F throwing the shoe out of its proper position when short curves of the sole are brought against the cutters. Q is a finger-support, seen in detail in Figs. 9 and 10, which is secured to

the swivel C by means of screws *g g*. It has on its front end a curved projection, *h*, on which the operator places a finger to steady his hand in holding the shoe and changing its position.

Operation.

The shoe is held up against the guides N and O and rest P by the operator, and turned around to bring the continuous edge
552 of the sole against the cutters F and F^1 as they revolve in the direction of the arrows by means of the band J, driving-wheel K, and pulleys I and L, whereby the edge of the sole is trimmed, the welt being trimmed at the same time by means of the cutter F^2. When the edge of the sole is to be burnished the square part *b* of the swivel C is raised out of its seat *a*, and the head is turned one-fourth round, so as to bring the shaft E vertical and with the burnisher H on its upper end. The part *b* is then connected with the seat *a* for holding the shaft securely in position. The changing of the shaft from one position to the other may be made while it is running.

By removing the devices for trimming and burnishing shoe-soles the machine may be used for dovetailing and like purposes by the connection of suitable cutters with the shaft E. I claim as my invention—

1. In combination with the revolving shaft E, the cutters F and F^1 having the front edges of their teeth *t* inclined forward to the outer faces of the cutters to produce drawing cuts toward the middle of the edge of the sole, substantially as and for the purpose described.

2. The cutter F^2, in combination with the cutters F F^1, substantially as specified.

3. The gage O, in combination with the cutter F and loose guide N, substantially as and for the purpose set forth.

4. The rest P arranged and operating in relation to the cutters F, F^1, and F^2, substantially as and for the purpose specified.

BENJAMIN J. TAYMAN.

Witnesses:
STEPHEN USTICK.
JAMES I. ALLISON.

554 UNITED STATES PATENT OFFICE.

BENJAMIN J. TAYMAN, of Philadelphia, Pennsylvania, assignor, by mesne assignments, to George H. P. Flagg.

Machine for Trimming the Soles of Boots and Shoes.

Specification forming part of Reissued Letters Patent No. 9073, dated February 10, 1880; original No. 136,790, dated March 11, 1873; application for reissue filed December 8, 1879.

To all whom it may concern:

Be it known that I, Benjamin J. Tayman, of the city of Philadelphia and State of Pennsylvania, have invented certain improve-

B. J. TAYMAN,

Assignor, by mesne assignments, to G. H. P. FLAGG.

Machine for Trimming the Soles of Boots and Shoes.

No. 9,073. Reissued Feb. 10, 1880.

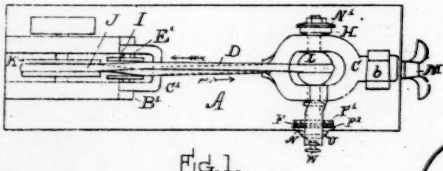


Fig. 1.

Fig. 12.

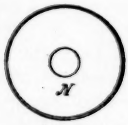


Fig. 14.

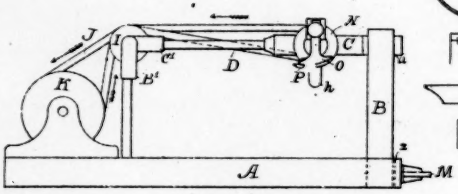


Fig. 2.

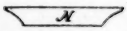


Fig. 13.

No. 233 U.S.C. v. Keith } p. 553.

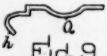


Fig. 9.

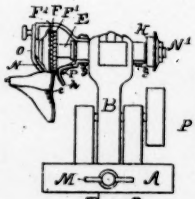


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 7.

Fig. 8.

Fig. 6.

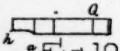


Fig. 10.

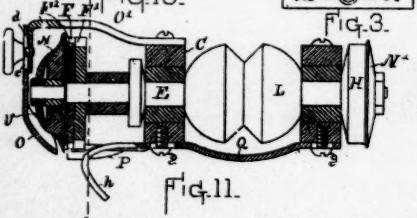


Fig. 11.

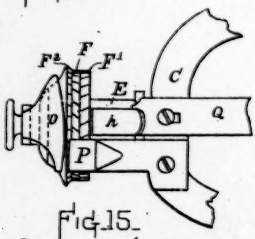


Fig. 15.

Wm. Zittel
J. R. Snow.

Benjamin J. Tayman
by J. E. Maynadier
his atty.

ments in machines for trimming shoe soles and welts and burnishing the soles, of which the following is a specification:

My machine is provided with a revolving shaft having cutters for trimming the edges of shoe soles and welts and a wheel for burnishing the edges of the soles. The shaft is held securely in either a horizontal or vertical position to suit the work to be done, and is capable of being changed from one position to the other while running, thus preventing loss of time in the adjustment.

My invention consists in a novel form of cutting-edge for rotary edge-trimming tools; also, in a rotary welt-trimmer for taking off the corner of the sole next the upper; also, in the combination, with a sole-edge-finishing tool, of a rest for the edge of the sole, to enable the operator to steady the shoe and hold it more firmly, especially when finishing the edge about the toe; and also in the combination, with a sole-edge-finishing tool, of a finger-rest to aid the operator in holding the shoe under the action of the tool; and in the combination of a rotary cutter for both trimming the sole-edge and taking off the corner of the sole next the upper, with certain of the other elements above named.

The peculiar construction of the machine is hereinafter fully described.

(Here follows diagram marked p. 553.)

Figure 1 is a plan view of the machine. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation, in which a shoe is seen in position for the trimming of the sole and welt. Figs. 4 and 5 are top and edge views of the rest P. Figs. 6, 7, and 8 are top, side, and edge views of the guide O. Figs. 9 and 10 are top and edge views of the finger-support Q. Fig. 11 is a side view of the shaft E, having on one end cutters F and F′ for trimming the edge of the sole, a cutter, F^2, for trimming the welt, and a circular guide, N, and on the other end a burnisher, H, and a guide, N′. Fig. 12 is a cross-section of the shaft E at the dotted line *a b* of Fig. 11. Figs. 13 and 14 are edge and face views of the guide N. Fig. 15 is an under-side view, showing the relative arrangement of the rest, finger-support, and cutters.

Like letters in all the figures indicate the same parts.

A is the bed-plate, which has an upright, B, at its front end, provided with a seat, *a*, in which the square part *b* of the swivel C is supported. The swivel C is connected to the swivel C′, by means of the rod D, by a screw-connection, so as to admit of their turning freely thereon. The swivel C is provided with a revolving shaft, E, carrying on one end circular cutters F and F′ for trimming the edge of the sole, and a like cutter, F^2, for trimming the welt, and a circular burnisher, H, and guide N′ on the other end. The cutting-edges of the teeth *t* of the cutters F and F′ have a forward inclination toward the outer faces of the cutters, for the purpose of producing an inwardly-drawing cut to prevent leaving a feather-edge on the corners of the edge of the sole, and it is in order to produce this V-shaped cutting-edge that the cutters F F′ are made separate. The cutter F is thinner than the thinnest sole of shoes, to always

insure the combined action of both cutters, thus preventing the formation of a feather-edge on the outer corner of the sole. The outer cutter, F′, is sufficiently thick to project over the thickest sole, and thus secure a clean cut. The cutter F^2 has its cutting-edges inclined towards its axis, so that it will take off the corner of the sole next the upper, and thus trim the welt, the cutter in my machine trimming both the edge and the welt. The swivel C′ is provided with a revolving shaft, E′, whose journals are supported by the forked upright B′. On the shaft is a double pulley, I, with which is connected the band J, which connects also with the driving grooved wheel K and the pulley L on the shaft E, for revolving the cutters F, F′, and F^2 and burnisher H. The upright B is adjusted so as to elevate or depress the swivel C by means of a vertical slot, *z*, in the bed-plate and the tightening-screw M.

N is a circular guide on the shaft E. It turns loosely on the shaft, so as to roll in the depression *c* formed by the junction of the
555 sole and upper of the shoe, as seen in Fig. 3, to prevent friction and consequent injury to the leather.

N′ is a loose guide in combination with the burnisher H. In connection with said guide N there is a gage O (seen in detail in Figs. 6, 7, and 8), which presses lightly upon the upper, to assist in keeping the shoe in its normal position while the sole is being trimmed, and to prevent said guide N cutting the stitches or injuring the upper. It is connected with the stationary plate O′, the inner end of which is secured to the swivel C. The guide has a vertical adjustment by means of the connection of the shank *d* with the groove *e* in the front end of the plate O′.

P is a rest (shown in detail in Figs. 4 and 5), which is fastened by means of a screw to the swivel C. The object of this rest is to prevent the cutter throwing the shoe out of its proper position when short curves of the sole are brought against the cutters.

Q is a finger-support (seen in detail in Figs. 9 and 10), which is secured to the swivel C by means of screws *g g*. It has on its front end a curved projection, *h*, on which the operator places a finger to steady his hand in holding the shoe and changing its position.

Operation: The shoe is held up against the guides N and O and rest P by the operator, and turned around to bring the edge of the sole against the cutters F and F′ as they revolve in the direction of the arrows, by means of the band J, driving-wheel K, and pulleys I and L, whereby the edge of the sole is trimmed, the welt being trimmed at the same time by means of the cutter F^2. When the edge of the sole is to be burnished the square part *b* of the swivel C is raised out of its seat *a*, and the head is turned one-fourth round, so as to bring the shaft vertical and with the burnisher H on its upper end. The part *b* is then connected with the seat *a*, for holding the shaft securely in position. The changing of the shaft from one position to the other may be made while it is running.

By removing the devices for trimming and burnishing shoe-soles the machine may be used for dovetailing and like purposes by the connection of suitable cutters with the shaft E.

What I claim as my invention is—

1. A rotary cutter, F F′, having angular cutting-edges to produce drawing cuts toward the middle of the edge of the sole, substantially as described.

2. A rotary welt-cutter, F^2, having cutting-edges inclined toward its axis and adapted to take off the corner of the sole near the upper, substantially as described.

3. In combination, the sole-edge finishing tool and the rest P, substantially as described.

4. In combination, the sole-edge finishing tool and the finger-support Q, substantially as described.

5. The rotary cutter F′ F′ F^2, adapted to trim both the edge and the welt, substantially as described.

6. In combination, the rotary cutters F′ F′ F^2, adapted to trim both the edge and the welt, and the rand-guide N.

BENJ. J. TAYMAN.

Witnesses:
ANDREW ZANE, JR.
JNO. H. SCHAEFFER.

557 UNITED STATES PATENT OFFICE.

AUGUSTUS C. CAREY, of Malden, Massachusetts.

Improvement in Machinery for Setting and Trimming Edges of Boot and Shoe Soles.

Specification forming part of Letters Patent No. 147,552, dated February 17, 1874; application filed January 30, 1874.

To all whom it may concern:

Be it known that I, Augustus C. Carey, of Malden, Middlesex county, Massachusetts, have invented certain new and useful improvements in machinery for setting or trimming the edges of the soles of boots and shoes, of which the following is a specification:

My invention has reference to what are termed in the trade "edge-setting machines." The invention principally relates to the setting or trimming tool and means for giving it movement. It also has relation to the jacking mechanism. The setting-tool is mounted on a supporting-arm, and is capable of vertical, lateral, and tilting or tipping motions with relation to the jack or jack mechanism. In lieu of giving to the tool a rotary movement, I impart to it a reciprocating movement, so that it will reciprocate bodily over the surface on which it acts. When so actuated it is effective in operation, and can be more readily manipulated, while the mechanism for moving it is less complicated and better adapted for general use than has heretofore been the case. I also combine with the mechanism operating to set the crank-pin at varied distances from its center of motion, as described in my letters patent No. 132,749, dated November 5, 1872, certain parts designed, in part, to give greater range of movement and adjustment to the crank-pin, and, in part, to steady the setting-tool and to cause its supporting-arm to recip-

rocate as nearly as possible in a right line, without having the rocking motion it would have were it connected directly to the crank-pin.

These and other features of my invention can, however, best be explained and understood by reference to the accompanying drawings, in which—

(Here follows diagram marked p. 556.)

Figure 1 is a perspective view of an edge-setting machine embodying my improvements. Fig. 2 is a central section of the crank-wheel detached. Fig. 3 is a longitudinal vertical central section of jack mechanism, one of the two jacks being represented.

The setting-tool A, which may be of any suitable construction, consisting of one or more blades or knives and a shank or handle, is mounted or swiveled on the end of a supporting-arm, B, to which a back-and-forth movement is imparted from the crank or wrist pin *a* of crank-wheel C, this wheel being fixed on a shaft, D, which is supported in proper bearings on the frame E of the machine, and rotated by belting extending from a suitable driving-pulley over the fast pulley F. The other pulley, F′, is an ordinary loose pulley, to which the belt can be shifted in the usual way when it is desired to stop the machine.

In this way a reciprocatory movement is given to the setting-tool. The tool A, in this instance, is a double tool, consisting of a shank or handle, *b*, capable of turning in bearings in the supporting-arms or yoke *c*, attached to, and branching from, the sleeve *c′*, that is attached to, and can turn and revolve on the end of, the arm B. On each end of the shank or handle *b* is a setting or trimming blade or knife, *d* or *d′*, which, by reversing or rotating the tool, can be used interchangeably, according to the requirements of the work; and either knife, when in action, can be turned on the axis of the handle *b* and tilted on the axis B, so as to better adapt itself to the portion of the sole-edge operated on. The tool-supporting arm may be connected directly with the crank-pin, as described in my aforesaid letters patent No. 132,749; but, in a machine intended to trim edges, it is desirable that the setting-tool should reciprocate as nearly as may be in a right line without rocking; and, therefore, in lieu of making a direct connection with the crank-pin, I swivel it or attach it by a sleeve to a stud, *e*, projecting laterally and horizontally from an intermediate arm or lever, G, of considerable length, mounted at its lower end on a horizontal stud or pivot, G′, on frame E, which pivot is at such distance from the upper end of the arm that the rocking motion of the arm at said end in the small arc through which it is moved is scarcely perceptible, and is practically without effect, so that the reciprocatory movement of the arm B will be substantially in a right line. The arm B is made with a joint at *f*, that permits the tool to be moved in toward and back from the jack, as described in my patent No. 132,749. The intermediate arm or lever G derives motion from the crank-wheel C, through the medium of a connecting-rod, *g*, mounted at one end on the crank-pin, and

A. C. CAREY.

Machinery for Setting and Trimming Edges of Boot and Shoe Soles.

No. 147,552. Patented Feb. 17, 1874.

Fig. 1

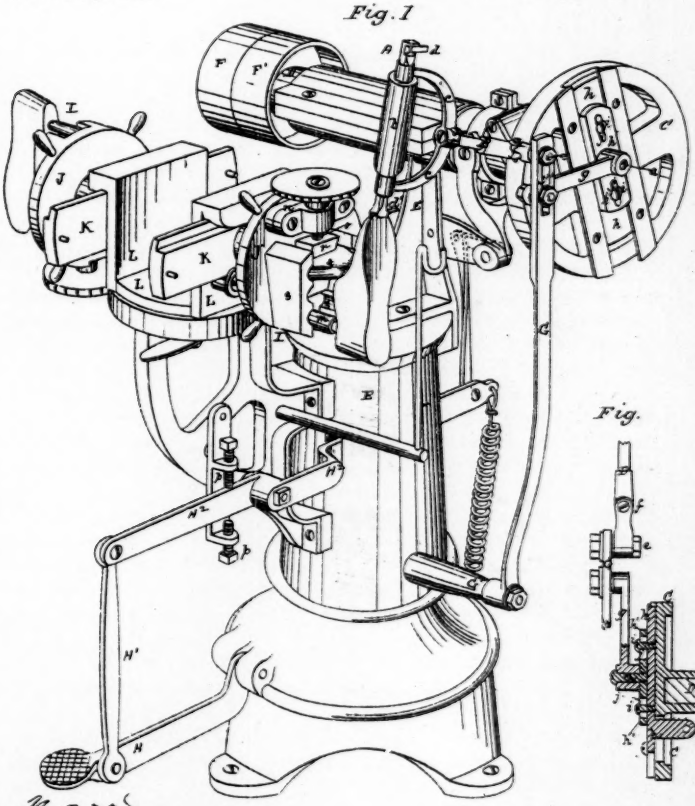
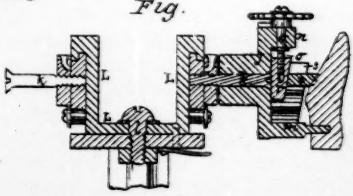


Fig.

No. 233
U.S. Co.
Keith
p. 556

Fig.



Witnesses
Ewell Dick
Wm E. Chaffee

Inventor
Augustus C. Carey
by atty A. Hollotz

provided at the other end with a laterally-projecting stud,
558 that works in a vertical slot, g', in the upper end of arm C. The crank-pin a is arranged so that its distance from its center of motion may be changed to vary the length of stroke of the tool, being thus actuated by a slide, h, which is operated by mechanism similar to that described and shown in my patent No. 132,749, and therefore requiring no particular description here. The motion of the mechanism that actuates the slide is obtained by the treadle H, connected by the rod H^1 with the main lever H^2 of the slide-operating mechanism. With the main lever H^2 I combine a stop mechanism, consisting of two oppositely-arranged adjustable regulating or limiting screws, h, between which the front arm of the lever plays. This mechanism has, however, been fully described and claimed in my letters patent for improved burnishing-machine, of even date herewith, and it requires, therefore, no detailed description here.

I have found it advantageous to provide an adjustment of the crank-pin in addition to that which I have provided for it in previous machines, the effect of this additional adjustment being to increase or decrease the distance at which the pin stands normally from its center of motion. To this end, instead of attaching the pin directly to the slide h, I fix it to an auxiliary plate, h', held to slide h by set-screws i, extending through longitudinal slots j in said plate. By loosening the set-screws, the plate can be adjusted in one direction or the other to any extent within the limits of the slots, and when so adjusted is clamped to the slide by tightening up the set-screws.

In connection with the trimming mechanism, I employ a jacking mechanism to present the shoe or boot in proper position to the action of the trimming-tool. This jacking mechanism, which may be of any ordinary or suitable construction, consists, in the present instance, of the jack proper, I, mounted on a jack-wheel, J, capable of rotating on a horizontal stud, k, projecting from a slide, K, supported in suitable guides on head-block L. The trimming-tool has capacity for all necessary movement, to enable it to adapt itself to the various portions of the sole-edge to be operated upon; and the combined rotary and sliding motions of the jack permit all portions of the sole edge to be brought properly under the trimming tool.

I prefer to employ a double jacking mechanism, consisting of a head-block, L, pivoted at its center l, so as to revolve on a vertical axis, and carrying at each end a jacking mechanism. Under this arrangement the workman can reverse the head-block, and bring each jack in succession to the trimming-tool, while an attendant, during the time the shoe on one jack is being trimmed, can remove from the other jack the shoe just finished, and replace it by another shoe to be operated on in its turn.

I give no special description of this arrangement here, however, inasmuch as the same is fully described in and makes part of my letters patent for improved burnishing-machine of even date herewith.

In Figs. 1 and 3 a very convenient mechanism for jacking the boot or shoe is represented.

On the face of the wheel at one edge is fixed the usual heel post or stud *m*. At the portion of the edge of the wheel diametrically opposite the post is a bearing-piece, *n*, in which turns a spindle or rod, *o*, held to the bearing-piece by collars in the usual way. On the outer end of this spindle is a thumb-wheel, by which it may be turned. The inner end of the spindle is screw-threaded, and enters and engages a screw-threaded socket in a wedge-piece, *r*, that can slide on the face of the jack-wheel, being moved in one direction or the other by turning the screw-spindle. This wedge slides between side pieces or guides *s*, which are formed on their inner faces with guide-grooves to receive the toe-rest *t*. The toe-rest can move out and in in these grooves. The wedge *r* lies under the toe-rest.

In using this mechanism, the last is fixed on the heel-posts in the usual way. The screw-spindle is then revolved in the direction necessary to cause the wedge to advance under the toe-rest, and so gradually force it outward until it is jammed tightly against the last, as indicated in Fig. 3. The last can thus be held most firmly. A reverse movement of the wedge will, of course, loosen the toe-rest.

A series of guide-grooves are formed in the side-guides *s*, as shown, so that the toe-rest may be set nearer to or farther from the heel-post, as occasion demands.

Having described my invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by letters patent, is—

1. In an organized machine for setting or trimming the edges of soles of boots and shoes, a trimming or setting knife or tool having a positive movement of reciprocation back and forth over the sole-edge to be operated on, substantially as and for the purposes shown and set forth.

2. In machinery for setting or trimming the edges of boot and shoe soles, the combination, with a jacking mechanism, of a trimming or setting tool or knife, mounted on and carried by a reciprocating supporting-arm, and capable of vertical and lateral movements to enable it, while reciprocating, to adapt itself to the various portions of the sole-edge to be operated on, substantially as shown and described.

3. The combination, with the setting-tool, its supporting arm, and the crank-wheel, of the arm or lever intermediate between and connecting said supporting-arm and crank-wheel, substantially in the manner and by the means shown and described.

4. In machinery for setting the edges of boot or shoe soles, a reversible double setting or trimming tool, consisting of a shank
559 or handle provided at each end with a trimming or setting knife or blade, and swiveled on the end of its supporting-arm, so that it may be reversed end for end to bring either knife or blade into action, substantially as shown and set forth.

5. The jacking mechanism herein described, consisting of the heel-post, side guides, and toe-rest supported between said guides, in combination with the sliding wedge and its actuating screw-spindle,

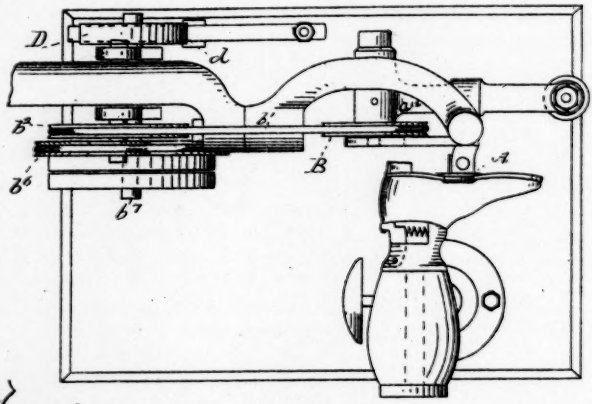
561

(No Model.) 2 Sheets—Sheet 2.

R. ASHE.

EDGE SETTING MACHINE.

No. 251,154. Patented Dec. 20, 1881.



No. 233 U.E.S.Co. v. Keith } p. 561.

Fig. 2.

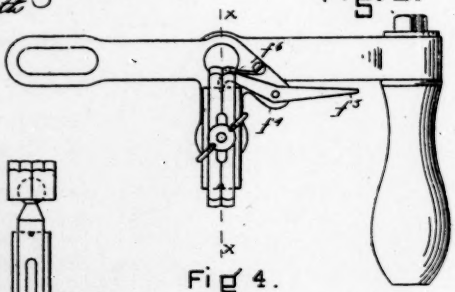


Fig 4.

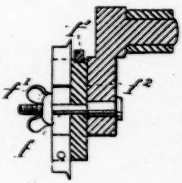


Fig. 5.

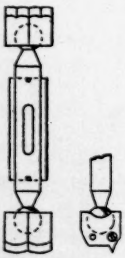


Fig 6.

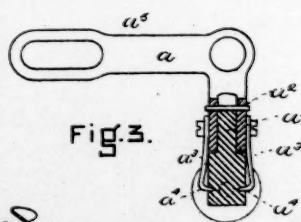


Fig. 3.

WITNESSES

F. F. Raymond 2d

W. C. Fogg

INVENTOR

Robert Ashe

561
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(No Model.) 2 Sheets—Sheet 1.

R. ASHE.

EDGE SETTING MACHINE.

No. 251,154. Patented Dec. 20, 1881.

No. 233. Unsd. to Keith } p. 560

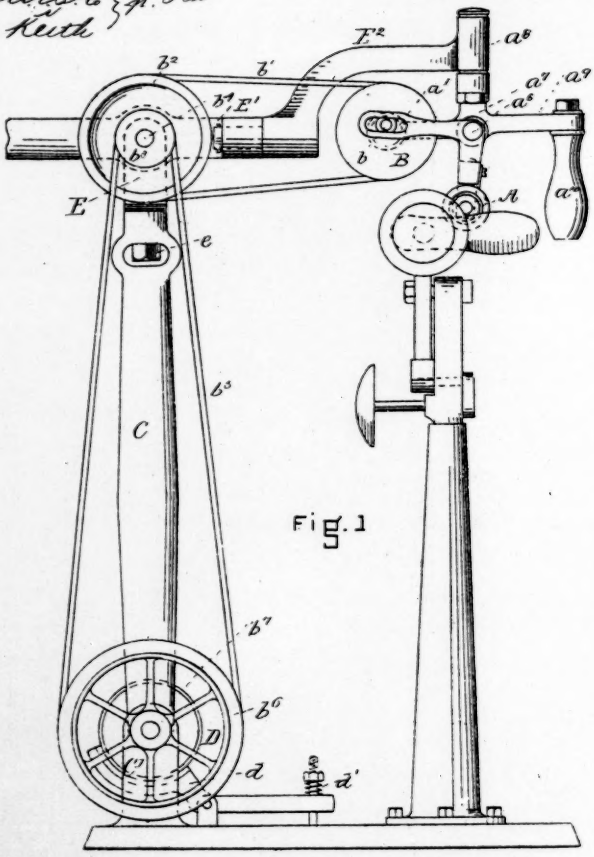


Fig. 1

WITNESSES
F. F. Raymond 2d
W. C. Fogg

Robert Ashe INVENTOR

said parts being arranged together for joint operation, in the manner shown and set forth.

6. The combination, with the crank-wheel and slide, of the auxiliary plate carrying the crank-pin, and mounted and adjustable longitudinally on said slide, substantially as and for the purposes shown and set forth.

In testimony whereof I have hereunto signed my name this 28th day of January, A. D. 1874.

A. C. CAREY.

Witnesses:
GEO. T. ANGELL.
ALFRED T. PERRY.

562 UNITED STATES PATENT OFFICE.

ROBERT ASHE, of Somerville, Assignor to GEORGE W. COPELAND, of Malden, Massachusetts.

Edge-Setting Machine.

Specification forming part of Letters Patent No. 251,154, dated December 20, 1881. Application filed September 13, 1881. (No model.)

To all whom it may concern:

Be it known that I, Robert Ashe, of Somerville, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a certain new and useful improvement in edge-setting machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature, in which—

Figure 1 represents a side elevation of my machine; Fig. 2, a plan view thereof; Fig. 3, a side elevation and section of a portion of the mechanism hereinafter described; Fig. 4, a side elevation of the bell-crank lever and an edge-setting tool, hereinafter more fully described. Fig. 5 is a vertical section on the line *x x* of Fig. 4. Fig. 6 represents in elevation a modification in construction of the setting-tool.

The object of this invention primarily is to provide a simple and efficient means for rapidly reciprocating the edge-setting tool; secondarily, it relates to various details in the construction of the tool-supporting mechanism whereby various necessary adjustments are obtained, and also to the construction, method of supporting, and reversal of the edge-setting tool.

(Here follow diagrams marked pp. 560 & 561.)

In the drawings, A represents one of the edge-setting tools. It is shown in section in Fig. 3, and is fastened to the bell-crank lever *a* by means of the stud or spindle *a'*, which shuts into a socket or recess in the end a^2 of the bell-crank lever, and by the springs a^3, attached to the arm a^2 and adapted to close into the recesses or holes

a^4 upon each side of the stock of the tool, as represented. The bell-crank lever, in addition to its tool-supporting arm a^2, has the arm a^5 projecting at right angles to the other arm, and it is pivoted at a^6 to the bracket or support a^7, which is adapted to be turned horizontally in the socket or head a^8 supporting it, and which has the arm a^9 supporting the handle a^{10}, by which the position of the tool in relation to the work is changed from time to time, as desired. The arm a^5 of the bell-crank lever has at its end the slot a^{11}, and into this slot projects the pin, eccentrically arranged on the disk or pulley B. This disk or pulley B is supported by the arm a^{12} projecting from the bracket a^7, and is revolved by means of the belt b' and pulleys b^2 b^3 upon the shaft b^4, belt b^5, and pulley b^6. This pulley b^6 is revolved on the shaft b^7 by a belt connected with any driving-pulley. This shaft b^7 also serves as the pivot or hinge by which the post C is attached to the base C′, the shaft being keyed or otherwise rigidly fastened to the post, and turning in the supports upon either side. To prevent, however, the pulley b^7 from throwing the post over in the direction of its revolution, I have arranged upon the opposite side of the shaft from that on which the pulley b^7 has a bearing a friction device, consisting of the wheel D and the brake d, which is held against the wheel by means of the spring d'. This brake should be sufficiently powerful to prevent the pulley from moving the post, yet at the same time it should not be strong enough to offer any considerable resistance to its movement by the operator.

At the upper end of the post, and at right angles thereto, is the cross-piece E. This cross-piece has bearings in the intermediate block, E′, the shaft b^4 acting as a pivot, thus providing for the vertical movement of the upper portion of the tool-supporting frame. The intermediate block, E′, has a spindle, e, which enters a socket in the upper part of the post and provides for the swiveling horizontally or latterly of the upper portion of the frame upon the post. The arm e^2 is attached to the end of the cross-piece E in a manner that will enable it to be turned upon the horizontal axis of the said cross-piece, and it is curved upwardly, as represented, and supports at its end the arm or support a^7, as before indicated.

Any suitable jack may be used for holding the work during the action of the tool, and I represent in the drawings a well-known form of jack having all the necessary adjustments for revolving the boot or shoe and for properly presenting it to the tool.

By the eccentric and bell-crank lever a very simple and cheap method of reciprocating the setting-tool is provided. By the construction of the frame all necessary movements in position of the tool in relation to the work are effected.

In lieu of the tool A, I can use the tool shown in Fig. 5, which is attached to the arm a^2 of the lever, or to a block fastened thereto by means of a bolt, f, and thumb-screw f'; or the tool may be
563 fastened to the block f^2, in which case the tool is easily reversed, so that one shape may be easily changed for another shape without substitution.

To lock the tool in position I use the catch f^3, pivoted at f^4, and

having the extension f^5 projecting toward the handle. This catch f^3 enters the hole in the block f^2, and is held therein by means of a spring, f^6. If it is desired to reverse the tool, the catch is lifted, the thumb-screw turned out a little, and the tool reversed, and the catch will then enter a corresponding hole upon the opposite side of the block, and the tool will be thus held in its place until it becomes again necessary to reverse.

In lieu of a tool having a rounded, flat, or convex surface, I may use one shaped as shown in Figs. 4 and 6, having two convex projections.

In Fig. 6 I represent a reversible tool in every way like the one already described, with the exception that the working portions of the tool are made separate or distinct from the connecting part, and are attached to the connecting part by a ball-and-socket joint, so that the tools have provision for some play upon the ends of their supports.

Having thus fully described my invention, I claim and desire to secure by letters patent of the United States—

1. The combination, in an edge-setting machine, of a bell-crank lever, pivoted as described, and adapted to support a tool at the end of one arm, an eccentric supported by the frame carrying the bell-crank lever, and an edge-setting tool, all substantially as and for the purposes described.

2. In an edge-setting machine, the combination of the jointed frame E^2 E′ C E, the bell-crank lever, one arm of which supports the tool and the other arm of which engages with an eccentric, and the eccentric, all substantially as and for the purposes described.

3. The combination of the arm a^2, having a socket and spring-latches, a^3, with the edge-setting tool having a spindle, a', and the recesses a^4, whereby the tool is attached to the arm, all substantially as and for the purposes described.

4. In an edge-setting machine, the combination of a reversible tool, consisting of the block f^2 and the tool attached thereto, with the arm a^2, the stud or bolt f, and the thumb-screw f', and the spring-catch f^3, all substantially as and for the purposes described.

ROBERT ASHE.

Witnesses:
F. F. RAYMOND, 2D.
W. C. FOGG.

565 UNITED STATES PATENT OFFICE.

ROBERT ASHE, of Somerville, assignor to George W. Copeland, of Malden, Massachusetts.

Edge Setting and Burnishing Machine.

Specification forming part of Letters Patent No. 254,859, dated March 14, 1882; application filed January 9, 1882. (Model.)

To all whom it may concern:

Be it known that I, Robert Ashe, of Somerville, in the county

of Middlesex and State of Massachusetts, a citizen of the United States, have invented a certain new and useful improvement in edge burnishing and setting machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

(Here follows diagram marked, p. 564.)

Figure 1 is a side elevation of the reversible head or stock of an edge-burnishing machine with the tools secured thereto. Fig. 2 is a vertical central section thereof. Fig. 3 is a vertical cross-section thereof. Fig. 4 is a vertical cross-section of a modified form of construction. Fig. 5 is a horizontal section on the line of one of the pins of Fig. 4.

This invention relates especially to means for securing the setting or burnishing tool to its head or stock; and it consists in a bushing, A, which is fastened in the hole *a* in the stock or head B in a manner to permit its oscillation, either by means of a pin, *a'*, which extends across the head and passes through a recess in the side of the bushing or sleeve, as shown in Figs. 4 and 5, or which passes directly across the hole in the head or stock through slots in the bushing or sleeve, as represented in Figs. 1, 2, and 3. In the first construction I prefer that the interior of the bushing or sleeve be made to taper outwardly near the end, and that the spindle of the burnishing tool C be made to accurately fit throughout the greater portion of its length or its entire length, in order that the friction, when the spindle is pressed home with some force, may be sufficient to hold the tool in place or from falling from the bushing. When the second construction is used I prefer to make the bushing or sleeve of uniform diameter throughout, and to make the spindle of the tool to fit therein; and to enable the spindle to slide by the cross-pin it will be necessary to have therein a recess. This recess should be of the width of the pivot, and the friction between the surface of the pivot and the sides of the recess and the surfaces of the spindle and sleeve will be sufficient to hold the tool securely to the stock while it is being reciprocated. To provide the tool with the necessary oscillation when this last-described form of construction is used, it will be necessary that the holes for the reception of the ends of the pivot in the stock shall be made in the form of slots, so that the pin may be turned a portion of a revolution upon the center, which is the axial line of the spindle.

Having thus fully described my invention, I claim and desire to secure by letters patent of the United States—

An improved tool head or stock, consisting of a hollow holder provided with a bushing or sleeve adapted to oscillate therein, and a tool having a spindle fitting within such sleeve or bushing, and held therein by frictional contact, all substantially as set forth.

ROBERT ASHE.

Witnesses:

F. F. RAYMOND, 2D.

WILLARD C. FOGG.

(Model.) 564

R. ASHE.

EDGE SETTING AND BURNISHING MACHINE.

No. 254,859. Patented Mar. 14, 1882.

No. 233 U.S.Co. v. Keith } p. 564.

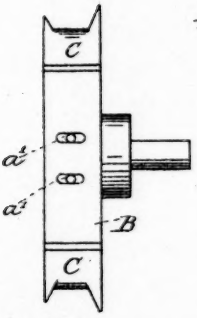


Fig. 1

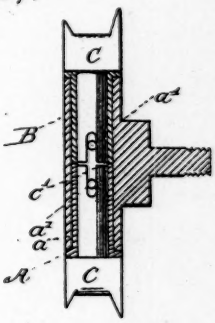


Fig. 2

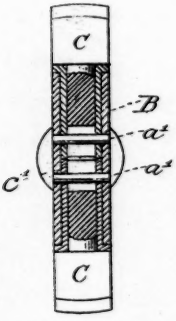


Fig. 3

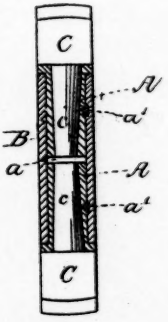


Fig. 4

Fig. 5.

WITNESSES

Fred. Harris

W. C. Fogg

INVENTOR

Robt. Ashe
by his attys
Clarke & Raymonds

(No Model.)

R. ASHE.

EDGE BURNISHING MACHINE.

No. 254,860. Patented Mar. 14, 1882.

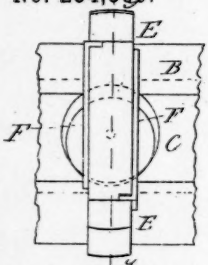


Fig. 3.

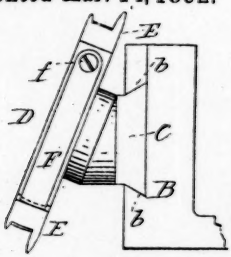


Fig. 4.

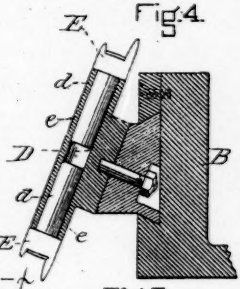


Fig. 5.

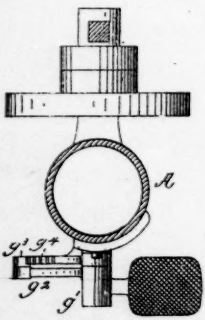


Fig. 2.

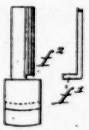


Fig. 6.

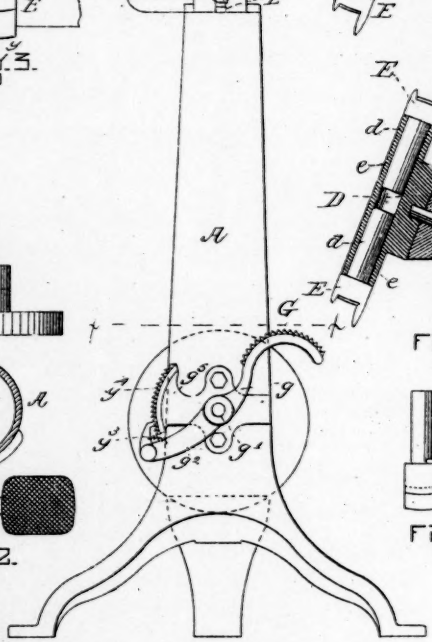


Fig. 1.

No. 233.
U.E.S. Co. } p. 566.
Keith

WITNESSES
H. C. Fogg
Fred Haynes

INVENTOR
Robert Ashe
by his attys
Clarke & Raymond.

567 UNITED STATES PATENT OFFICE.

ROBERT ASHE, of Somerville, assignor to George W. Copeland, of Malden, Massachusetts.

Edge-Burnishing Machine.

Specification forming part of Letters Patent No. 254,860, dated March 14, 1882; application filed December 12, 1881. (No model.)

To all whom it may concern:

Be it known that I, Robert Ashe, of Somerville, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a certain new and useful improvement in edge-burnishing machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature, in which—

(Here follows diagram marked p. 566.)

Figure 1 is a front elevation of my improved machine. Fig. 2 is a section and plan view on and below the line *x x* of Fig. 1. Fig. 3 is a front elevation, enlarged, of the burnishing-tool and its holding-block. Fig. 4 is a side elevation thereof to the right and front. Fig. 5 is a vertical section thereof on the line *y y* of Fig. 3. Fig. 6 represents the burnishing-tool and the latch, hereinafter described, detached from the machine.

This invention comprises, first, a reciprocating burnishing-tool and the specific means for operating the same; second, an adjustable foot-rest, whereby the operator is enabled to steady and hold firmly the work by hand in presenting it and holding it to the action of the burnishing-tool.

In the drawings, A is the standard of the machine. B is a bracket or block fastened to the top of the standard, and having upon its face suitable ways, *b*, in which the block C is reciprocated by means of the eccentric *c* and connecting-rod *c'*. The eccentric may be run by a pulley and belt from a counter-shaft.

The reciprocating block C has attached to it the head D, which preferably is inclined in relation thereto, as shown in Figs. 4 and 5, although of course it is not essential that this should be so. This head is provided with holes *d*, extending from each end thereof inwardly, and adapted to receive the spindle *e* of the burnishing-tools E, the head being arranged to carry one tool at each end. Each tool is held in place by the latch F, which is pivoted at *f* to the head, and swings laterally in relation thereto or at right angles to the line of the reciprocation of the head, the bent end *f* of the latch being adapted to enter the recess f^2 in the shank or spindle of the burnish-

ing-tool. This construction is well represented in Figs. 3 and 4. To remove the tool the latch is swung outwardly and the tool taken out or let fall. A new one may then be substituted and the latch returned to its original position, each tool being provided with a recess or latch-hole of the same shape and in the same place.

G is the foot-rest. It is at the end of the arm g preferably curved, as represented, and may or may not have a roughened or serrated surface. The arm g is pivoted to the standard of the machine at g', and has the extension g^2, which carries the spring-shank g^3, adapted to engage with the teeth g^4 of the curved rack g^5, whereby the height of the foot-rest may be varied as desired.

In operation the operator puts his foot upon the foot-rest, with his knee against the standard, and holds his work on his knee while it is burnished. This is of very considerable assistance in steadying the work, and also in enabling it to be done rapidly.

Having thus fully described my invention, I claim and desire to secure by letters patent of the United States—

1. In a burnishing-machine, the foot-rest G, as and for the purposes described.

2. In a burnishing-machine, the foot-rest G and means for varying the height, all substantially as specified.

ROBERT ASHE.

Witnesses:
F. F. RAYMOND, 2D.
W. C. FOGG.

568 *Clerk's Certificate to Volume II.*

UNITED STATES OF AMERICA, *Massachusetts District,* } ss:

I, John G. Stetson, clerk of the circuit court of the United States for the first circuit and district of Massachusetts, certify that the foregoing is a true copy of the pleadings and evidence in the cause in equity, lately pending in said circuit court, No. 1758, Union Edge Setter Company *v.* Benjamin F. Spinney *et al.*, stipulated in as a part of the record in the cause in equity entitled Union Edge Setter Company *v.* George E. Keith, in said circuit court determined.

And I further certify that this volume, entitled "Transcript of Record, vol. II," and an accompanying volume, having my certificate of even date herewith thereto annexed, entitled "Transcript of Record, volume I—record, evidence in part, opinions of the court, bond on appeal," together contain a true copy of the record and of all proceedings, including the evidence used at the hearings thereof and the opinions of the court, in said cause of The Union Edge Setter Company *v.* George E. Keith, in said circuit court determined.

In testimony whereof I hereunto set my hand and affix the seal

Seal of the Circuit Court, Massachusetts.

of said circuit court, at Boston, in said district, this first day of August, in the year of our Lord one thousand eight hundred and eighty-seven, and of the Independence of the United States the one hundred and twelfth.

JOHN G. STETSON, *Clerk.*

Endorsed on cover: Massachusetts C. C. U. S. No. 233. The Union Edge Setter Company, appellant, *vs.* George E. Keith. Filed October 14, 1887.

Office Supreme Court U. S.
FILED,
MAR 13 1891
JAMES H. McKENNEY,
CLERK

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1890.

No. 253. 233

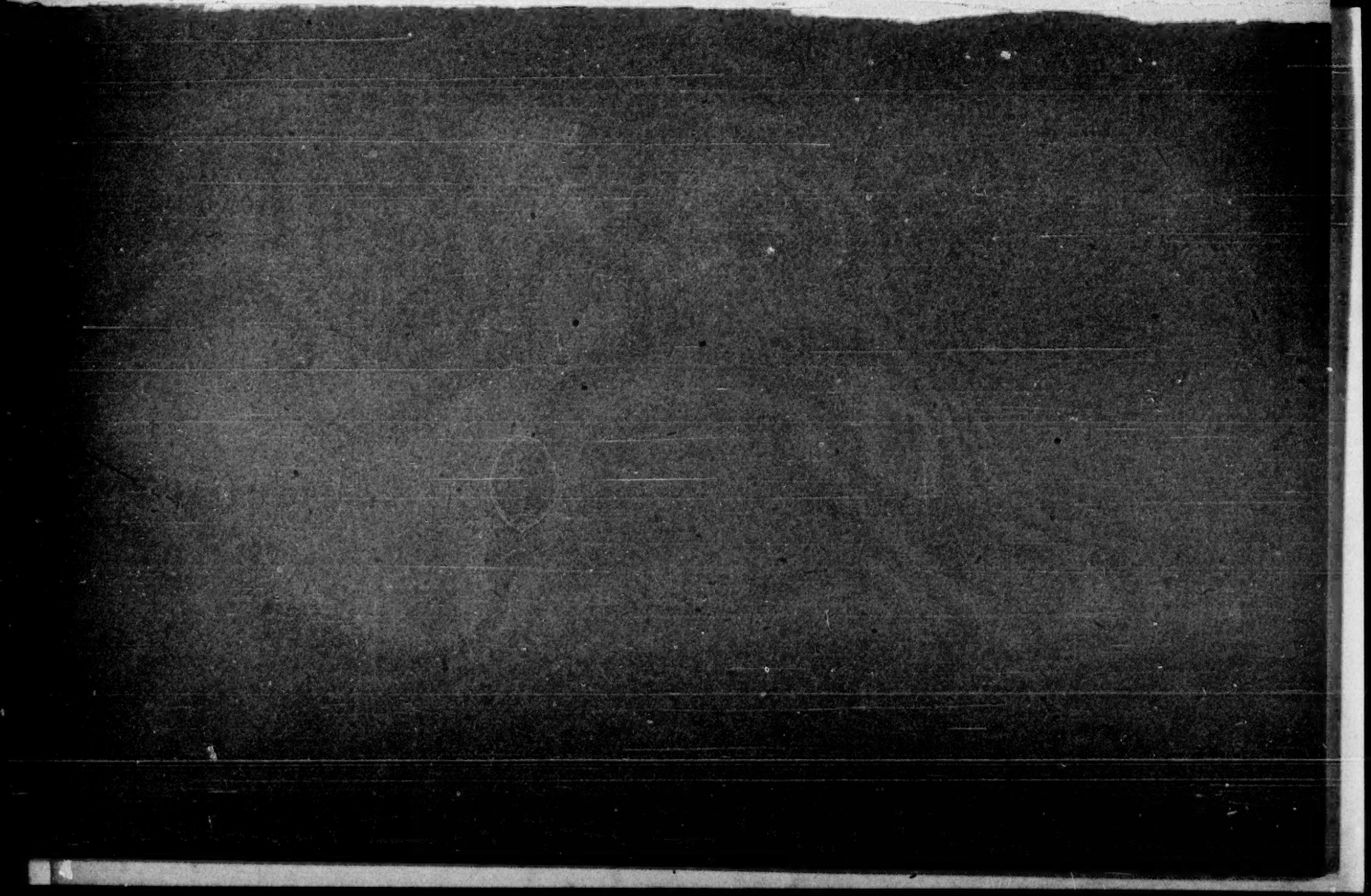
THE UNION EDGE SETTER COMPANY, APPELLANT,

v.

GEORGE E. KEITH.

APPELLANT'S BRIEF.

Press of Rockwell and Churchill, Boston.



Supreme Court of the United States.

No. 233. October Term, 1890.

THE UNION EDGE SETTER COMPANY, Appellant,

vs.

GEORGE E. KEITH.

The bill is based upon Letters-Patent No. 173284, dated February 8, 1876, application filed December 7, 1875. The first claim only is in question.

The patent is on pp. 387 and 388.

The title is clear; as is also the fact of infringement.

The only defence is that the alleged combination of the first claim of the Helms patent is not a combination.

The Circuit Court decided in favor of the complainant, August 19, 1886, but a rehearing was ordered, and on June 6, 1887, the bill was dismissed. (Pp. 236–241.)

The errors assigned are: —

(1.) The Court decided that the combination claimed in the first claim of the Helms patent was not a patentable combination.

(2.) The Court decided that neither of the three elements of the combination claimed in the first claim of the Helms patent performed any new function.

The alleged invention is a combination of three elements: (1) a tool for burnishing sole-edges, (2) a lip, or guard, which forms part of the tool, and (3) a finger-rest; organized, of course, substantially as shown in the patent.

The lip or guard of the burnishing tool is called in the patent

the "rest for the face of the sole," and is, in fact, an essential feature of the hand tool for burnishing sole-edges, well known for years before Helms' invention.

This burnishing tool with its lip, or guard, or rest for the face of the sole, is also shown in several patents issued before Helms' invention.

The finger-rest is shown in Tayman's patent.

Each element of the combination is old; but it is certain that HELMS IS THE FIRST TO TEACH THE USE OF A FINGER-REST IN CONNECTION WITH A BURNISHIG TOOL HAVING A GUARD.

The appellant's case rests upon this fact, and it is therefore restated:

Helms is the first to teach this plan of burnishing, that is, by the use of a burnishing tool having a guard in connection with a finger-rest. To emphasize farther, it is asserted: that no one ever suggested or hinted at this plan of burnishing before Helms' invention; that this plan of burnishing sole-edges has turned out to be far superior to all others; has practically superseded all others, and is now the only plan in general use.

In line with these assertions are the following: —

No plan of burnishing sole-edges except by the hand tool was devised before Helms', which went into general or wide-spread use.

All sole-edge burnishing machines known prior to Helms' machine have been superseded by Helms' machine.

No one has since been able to devise any sole-edge burnishing machine which can compete with Helms'; that is, the Helms' machine was put on the market in 1876 and 1877 by the Union Edge Setter Company; at once took the market to the practical exclusion of all others; and all of the rival machines since made have been servile copies of Helms' machine, so far as concerns the burnishing tool, its guard, the finger-rest, and the arrangement of these parts so that the tool and its guard reciprocated rapidly in front of the finger-rest; and so that an operator skilled in the use of the Helms' machine was also, *ipso facto*, skilled in the use of the rival machines.

In brief: —

Helms taught that to solve the problem, a burnishing tool, its lip, or guard, and a finger-rest, organized as shown in his patent, were essential;

Helms produced an organized machine with these three elements, which has gone into universal use:

No one prior to Helms suggested or hinted at the use of these three elements:

The rival machines are servile copies of Helms'.

The testimony in support of each and all of these assertions is full and clear, and there is no testimony to the contrary.

See, in particular, pp. 98, 99; 177, 178, 179; 182, 183; 185; 217, 218, 219, 220, 221, 222, 223; 226, 227; 229, 230; 260; 263, 264, 265, 266; 268.

While these general considerations are submitted as of much weight as showing that Helms is sheltered by the spirit of the law; yet it is, of course, necessary to go farther and show the fact of *invention* by considering in detail the prior state of the art.

Prior patents show examples of burnishing machines, consisting of a tool and its lip, or guard (this lip, or guard, ~~bring~~ being the "rest for the face of the sole" of the Helms' patent) and other elements, organized in various ways; but in no one of the patents showing these elements is there any hint or suggestion of a finger-rest, or any equivalent therefor. On the other hand, the Tayman patent (pp. 394 *et seq.*) shows a finger-rest in connection with a cutter; but this cutter has nothing resembling the lip, or guard, or "rest for the face of the sole" of the Helms' machine.

The reasoning which finally prevailed in the court below was, in substance, that there was no *invention* in substituting the well-known burnishing tool with its lip, or guard, and mechanism for reciprocating that tool; for the cutter and mechanism for rotating it of the Tayman patent.

But the appellant submits, with unabated confidence, that Helms did much more than merely substitute a reciprocating burnishing tool with a guard for the revolving cutter of Tayman.

In the Tayman sole-edge trimmer the face or tread of the sole must be moved towards or from the finger-rest to get the proper angle of the edge with the tread of the sole; for, obviously if the tread of the sole be held at one angle with the axis of the cutter the angle formed by the edge (trimmed by the cutter) and the tread is thereby determined; and, in order to

change that angle, the sole must be tipped or tilted, — for the rand-guide and rand-lip, or rand-cutter, must always be kept in the rand, which is the angle formed by the upper leather and the upper surface of the sole. But in the Helms machine the tilt or slant of the sole is determined by the angle of the edge with the tread; instead of determining that angle as in all edge-trimming machines. Hence the necessity of a guard, or lip, in front of the finger-rest, and which is between the sole and the finger-rest in the Helms machine; but not present in the Tayman machine.

A digression here seems necessary to more clearly explain this point. In trimming sole edges the angle of the edge with the tread is obviously determined by the angle of the sole with the axis of the cutter; for the sole may be held at such an angle with the axis of the cutter as to make the angle of the edge with the tread a right angle; and by tipping or tilting the sole, was to vary its angle with the axis of the cutter, the angle of the edge with the tread may be varied. But in burnishing the trimmed edge must be pressed close against the burnishing surface of the tool, so that all parts of each may be forced into burnishing contact with the corresponding parts of the other; and to effect this it is necessary that the sole be tipped or tilted as the angle of the edge with the tread requires. In brief, in trimming the sole must be tipped or tilted to give the desired angle of edge to tread; while in burnishing the angle of edge to tread, determines the tip or tilt of the sole.

Assuming the axis of the cutter in the Tayman machine as substantially horizontal, then the sole must be held in a nearly vertical plane, its proper variations from that plane depending wholly upon the skill of the operator, to give the variations of angle of edge to tread, required at different parts of the sole. But in the Helms machine the operator has nothing whatever to do with these variations of the plane of the sole; he *must* force the edge, with its varying angles with the tread, close against the surface of the tool; and when the sole edge is thus forced against the surface of the tool the plane of the sole is determined.

All this is a mere matter of geometry; plain, beyond doubt, from inspection.

"But I am ahead of my story, for I want to make plain that

trimming is one thing and edge-setting another, for in trimming with a rotary cutter the man must cant or tip the sole so as to get the bevels of the edge as he wants them, while in setting he must feel the bed (with its bevels ready made by the cutter) flat and firm against the tool. He don't tip the sole as he wants to, but as he's got to. He has nothing to do with it but to hold the sole so that its bed will be firm and flat against the bed of the tool, while a man trimming must hold the sole so that the cutter will cut away the edge to give him the bevels he wants. It's as different as night and day.

"In trimming with a rotary cutter the man holds the shoe up under the cutter and draws the shoe towards him, all the while tipping it to give the bevels desired to the edge. In going round the toe the operation is almost the same exactly. His eye and skill governs him, and feeling has nothing to do with it, so a finger-rest with a cutter is of no use. I know I never saw or heard of one used with a cutter, and I am sure that nobody ever used one with a cutter. It would be in the way and interfere with the workman, and certainly could do no good even if it was not in the way." (p. 220.)

The finger-rest is wholly idle in the Helms machine, except when burnishing about the toe; but it is certain that it, in conjunction with the lip, or guard, or rest for the face of the sole, is essential during that part of the work. Helms discovered this. No man before suggested or hinted at it.

Does not this show conclusively a new function or functions in the finger-rest and in the guard, due solely to their coöperation?

Without both finger-rest and guard it is impossible to hold the toe of the sole properly to the tool; each supplements the other; and all three act together to enable the sole to be oscillated about the fingers of one hand as a floating centre, while the edge is pressed up against the tool, which is itself rapidly vibrating.

It is plain that the main function or duty of the vibrating tool is to burnish the edge; but another function is to determine the position of the sole; *i.e.*, its relation to the other parts, and its tip or tilt with relation to a vertical plane. But in performing its functions its strong tendency is to reciprocate the sole, and this it must not do.

The function of the guard or rest for the face of the sole is to aid the operator in keeping all parts of the edge opposed to the corresponding part of the tool; but, owing to the rapid reciprocation of the tool, and owing to the necessity of keeping the sole pressed up against the tool, and properly tipped so that all parts of the edge may be in proper contact with the burnishing part of the tool, the guard alone cannot perform its functions; nor can the tool and the guard, without more, perform their conjoint functions; that is, with the tool alone, but without guard and without finger-rest, the machine is worthless; and with both tool and guard, but without finger-rest, the machine is also worthless at the toe part of the sole; but with all three the machine is the most marked advance ever made in sole-edge burnishing.

The main function of the finger-rest is to steady one hand of the operator and enable him to use the fingers of that hand as a floating centre about which to oscillate the sole, at the same time keeping the toe part of the sole edge pressed up against the burnishing part of the tool, and the sole tipped or tilted out of a vertical plane as such contact requires.

Without that connection between the sole and the three elements of the combination, which is furnished by the operator, there is plainly no combination of the three elements. But with that connection is it not too plain for dispute (and this is most respectfully submitted in these positive terms because it is thought that it will show error in the Court below) that each element of the combination materially modifies the action of all the others?

While each, no doubt, performs its old functions, as decided by the Court below, yet neither could perform any useful function at the toe part of the sole were it not for the aid furnished by the others.

It is the coöperation or conjoint action of all three that enables the operator to use one hand as a floating centre, and to oscillate the sole about this floating centre while keeping its edge pressed properly against the burnishing part of the tool.

Is not this a new organization of old elements and a beautiful example of this great class of meritorious inventions?

Was it not a flash of genius which enabled Helms to conceive of a shoe sole oscillated on a floating centre to sweep the toe

part of its edge back and forth under a rapidly reciprocating burnishing tool, while properly presented to and pressed against the tool, and to produce a simple organization of parts making this bold conception practical?

It is certain that no one before him had ever hinted at any such plan or any such organization; and in particular that there is no such idea nor any remotest suggestion of it in the Tayman patent.

"The finger-rest and the rest for the face of the sole acting together perform functions wholly unlike any peformed in the hand tool, or in any other machine, except only the copies of Helms machine above referred to; for together they enable an operator to hold the sole and upper with one hand, while with the other hand he holds the heel portion of the shoe; and with one finger clasped about the finger-rest the shoe is rapidly vibrated, so that nearly the whole circle of the toe is rubbed against the iron at each vibration of the shoe. This combined function of the finger-rest and guard, or rest for the face of the sole, is radically unlike anything else known to me; and I consider it by far the most striking novelty I ever saw. Operators generally overlook the functions of the guard and finger-rest, which I have pointed out when speaking of them separately; for they mostly take little interest in such questions; but it is rare to find one who is not struck by the beautiful adaptation of the three parts of the Helms machine after he has learned how to hold the shoe with one hand and to vibrate it around the middle of the toe part of the sole as a centre by the aid of the finger-rest and the guard, all the while holding the sole firmly wedged up between the rand-lip and guard, and preserving an even pressure clear across the sole edge." (Page 183.)

"But the most striking novelty of the Helms operation is due to the joint operation of the finger-rest and the rest for the face of the sole when the toe of the sole is burnished; then the finger-rest not only performs its functions to keep the hand from moving to and fro, but also enables the workman to use the finger, hooked around the rest, as a shifting centre around which to vibrate the shoe, and thus rub the edge of the toe back and forth under the tool. This is practically impossible unless the rest for the face of the sole and the finger-rest be used together — that is, it is made possible by the joint action

of the finger-rest and the rest for the face of the sole." (Page 217.)

"The first light I got on the matter was the notion of mounting the tool so that the workman could lift up under it; I mean as shown in my patent. This notion struck me one day, and I then felt that I began to see my way clear, and I had a machine made and tried it, but found it impossible to hold the shoe when trying to do the toe. I then made the finger-rest, but the machine was rough and imperfect, and I couldn't do any good work. However, I felt then sure that I had struck it right, and took it to Boston to get money to perfect it; and although it was a good deal of work to get it just right, I never had any doubt but I was on the right track and would succeed." (Page 219.)

"I know that no man can do practical work with a reciprocating burnisher unless he has both the guard and the finger-rest to help him in going round the toe, — that is, the guard between the sole and the finger-rest. I know that I found this out, and I know that I never saw or heard of anything which put this in my mind." (Page 221.)

"I was familiar before that time with rotary burnishers and rotary trimmers, and knew that a shoe could be readily held without a jack to those tools; but I knew also that no one had devised any way to hold a shoe to a reciprocating burnisher without a jack until Helms convinced me that he had; and I know of no other way of doing it except the way invented by Helms.

"I have no doubt that Helms made a far greater invention than any other of the numerous inventors who had before attempted to produce a machine for setting edges.

"I personally knew at least nine of those inventors whom I can now call to mind, and there were many others of whom I had information, and know that I myself and each one of the other nine worked faithfully, diligently, and many of them with abundant supply of money; but we each and all of us failed, as did all the others; and as soon as I became fully acquainted with Helms' invention I knew we were on the wrong track and that Helms was on the right track. It struck me at the time that Helms was entitled to outrank us all as an inventor, and I have never doubted as to that until the decision of this Court on the motion for rehearing." (Page 222.)

SUMMARY.

The elements of the combination claimed are old:

A finger-rest combined with an edge-trimming tool, without a guard, or lip, or rest for the face of the sole, is shown in the Tayman patent.

The burnishing tool, with its guard, or lip, or rest for the face of the sole, is old both as a hand tool and in machines shown in patents granted before Helms' invention.

It is not true that Helms merely substituted the old burnishing tool for the trimming tool of Tayman.

Helms produced a new organization of old parts, characterized by a most striking novelty of operation, enabling that to be done which is apparently wholly unfeasible and which was never suggested or hinted at before; and in Helms' new organization each element is materially modified as to its operation by the presence of the others, and each by its presence materially modifies the operation of the others.

The more minute the analysis the more clear it will become that the operation of each element modifies, and is modified by, the others; not formally, but materially.

The operation of the finger-rest is modified by the *reciprocating* motion of the burnisher as distinguished from the *rotary* motion of the trimmer; also by the *rubbing* action of the burnisher as distinguished from the *cutting* action of the trimmer; also by the duty of the operator to force the edge close against the burnishing part of the burnisher, and thereby determine the tilt of the sole, as distinguished from his duty to properly tilt the sole or hold it up to the trimmer, so as to form the proper angle of edge with tread; also by the duty of the operator to sweep the toe part under the rapidly reciprocating rubbing tool or burnisher, by oscillating the sole on a floating centre, as distinguished from his duty to present the toe part to a cutting tool or trimmer, so as to remove the surplus leather from the edge.

On the other hand, the operation of the burnisher and its guard, or lip, or rest for the face of the sole, is modified by the fact that the finger-rest aids the operator to prevent the sole from reciprocating with the rubbing tool and its guard, as distinguished from aiding him to prevent the sole from moving

around with or away from a rotary cutting tool without a guard; also by the fact that the toe part of the sole is swept back and forth under the burnishing tool, while the tool reciprocates rapidly (wholly new with Helms, and impossible in any other machine); also by the fact that the sole is properly tilted or tipped out of a vertical plane when thus oscillated by the sense of touch, as the operator tips or tilts the shoe unconsciously by merely keeping the edge pressed close against the burnishing part of the tool while sweeping the toe part of the edge under the burnisher, and keeps the sole in place laterally by simply holding it close against the guard, or lip, or rest for the face of the sole where its surface joins the burnishing part of the tool; also by the fact that the guard, or lip, or rest for the face of the sole reciprocates between the sole and the finger-rest, thus keeping the face of the sole from contact with the finger-rest, when the edge of the sole is pressed into close contact with the burnishing part of the tool; and always holding the sole free to be tipped or tilted in either direction as the variations in the angle of edge with tread require. This analysis might be continued by comparing the operations of the burnisher and guard when used by hand, and when used in machines without a finger-rest with their operations in the Helms machine; but this is unnecessary, as the Tayman patent seems to be the sole reliance of the defendants.

Do not these three parts, organized into a machine, as shown in the Helms patent, and claimed in the first claim of that patent, embody an invention of high rank?

Is not this organization of Helms substantially different from all prior machines because it embodies this meritorious invention?

Is it not abundantly proved that no successful machine for doing this quality of work was known before Helms' invention? and also that no machine was known up to the time the witnesses testified, which would do this work, except the Helms machine, and the servile copies of it made by infringers?

One of the points urged in defence at the first trial in the court below was that the rest for the face of the sole was the upper front part of the finger-rest, and was not the lip, or guard, of the burnisher.

This defence is fully considered in the opinion of Colt, J., of August 19, 1886, p. 236.

But it will be clear from the file wrapper and contents, pp. 382 to 380, that the inventor supposed at first; that he was entitled to the combination of finger-rest and burnishing tool; this claim was rejected on reference to Tayman's patent; and an amendment was made introducing a third element into the combination, called a "rest for the face of the sole." This was obviously because it was thought that Tayman did not show this element called the "rest for the face of the sole;" and this alone goes very far to make it clear that this expression was not intended to mean the upper front part of the finger-rest; for Tayman certainly has that. The Patent Office, however, called for an amendment explaining what was meant by "the rest for the face of the sole," and the amendment on pp. 385–6 was filed.

It would also seem abundantly clear that the phraseology of the claim is wholly inconsistent with the notion that it means the combination of a burnishing tool with *the upper front part of the finger-rest*.

The claim reads: "In combination with the burnishing tool and the rest for the face of the sole, the finger-rest D, substantially as described." Can this mean, "In combination with the burnishing tool and *the upper front part of the finger-rest*, the finger-rest D, substantially as described?"

Respectfully submitted,

J. E. MAYNADIER,
For Appellants.

Office Supreme Court U. S.
FILED,
MAR 11 1891
JAMES H. McKENNEY,
CLERK.

SUPREME COURT OF THE UNITED STATES,

OCTOBER TERM, 1890.

No. 233.

THE UNION EDGE SETTER COMPANY, APPELLANT,

v.

GEORGE E. KEITH.

BRIEF FOR DEFENDANT.

J. L. S. ROBERTS,
Counsel for Defendant.

Supreme Court of the United States,

OCTOBER TERM, 1890.

No. 233.

THE UNION EDGE SETTER COMPANY, APPELLANT,

v.

GEORGE E. KEITH.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF MASSACHUSETTS.

BRIEF FOR DEFENDANT.

THIS IS A BILL IN EQUITY FOR INJUNCTION, ACCOUNT, PROFITS, AND DAMAGES, BROUGHT ON THE PATENT GRANTED CHARLES H. HELMS, No. 173,284, DATED FEBRUARY 8, 1876, FOR USING MACHINES LIKE THAT PRODUCED IN THE CAUSE AND MARKED "COMPLAINANT'S EXHIBIT KEITH MACHINE."

THERE WERE TWO OTHER PATENTS ORIGINALLY DECLARED ON IN THE BILL, BUT BY STIPULATION WERE AFTERWARDS STRICKEN OUT.

The issues raised by the answer and evidence and contended for by the defendant are —

First. Non-infringement.

Second. Invalidity of the first claim of the patent; the other claims not alleged to be infringed.

The machine embodying the alleged invention is designed for burnishing the edge of a boot or shoe, after it has been trimmed by a cutter to the desired shape.

The burnishing tool is and must be of the same contour or shape in outline as the cutter or trimming tool, in order to properly burnish all parts of the edge which have been shaved or trimmed by the cutting tool.

Cutting or trimming the edge of the sole with a cutter or edge plane, and burnishing the same with a tool having the same shape or contour as the cutter, is as old as the art of shoe-making.

Within the past fifty years there has grown up a distinct and separate business for the manufacture and sale of edge trimmers (cutters) and edge setters (burnishers), the shape or outline of each tool corresponding with that of the other.

> See diagrams in "Defendant's Exhibit Corthell Man-"ufacturing Company Circular," "Atherton and "Snell's Circular."

The machine shown and described in the Helms patent in suit consists of a power-driven reciprocating tool holder, holding an ordinary burnishing tool and an adjustable finger-rest or hook, its front surface projecting just below the tool.

The function of the tool is to burnish the edge of the sole, in the same manner as when used in a holder operated by hand; the face of the burnishing tool corresponding with that of the cutter or edge plane which had been used to cut or trim the edge to the desired shape.

The function of the finger-rest or hook is to furnish a support to the finger and steady the hand of the operator when burnishing the sole edge, especially when burnishing the corners of the toe of the shoe.

The finger rest or hook is described in the patent as

having another function, viz., affording a rest for the face of the sole.

Complainant contends that it is the guard or lower flange of the burnishing tool which has and performs this other function—affording a rest for the face of the sole.

The question of infringement hinges upon this point, whether the words "rest for the face of the sole" mean that part of the burnishing tool which has always been known and designated as the "guard," or whether they mean the front surface of the finger-hook or rest.

If it means the latter, then complainant admits defendant's machine does not infringe; if it be held to mean the former, that is, the "guard" of the burnishing tool, then complainant contends that defendant's machine infringes the first claim; but even with that construction defendant denies infringement and also contends that said first claim is void for lack of novelty, there being no patentable invention disclosed therein.

STATE OF THE ART.

TOOLS AND MACHINES.

In the year 1860, E. T. Ingalls, of Haverhill, patented a machine, No. 28,181 (p. 378 of the Record), for burnishing the edges of shoe soles. This machine employed a reciprocating tool, having a flange or guard, called in the patent (p. 380, line 15) the horizontal lip *u*, that bears on the top of the sole. The tool was mounted so that it swivelled upon its tool stock, thus conforming to the irregularities of the edge of the sole. The shoe to be burnished was mounted, sole upward, upon a jack, which was caused to revolve and present the edge of the sole to the burnishing tool proper. This flange or lip of the tool of the Ingalls machine is called

by the complainant's witnesses a "*rest for the face of the sole*," but it is usually known as the "*guard*," of the tool. In the Gubault patent of 1868 (p. 377, 16th line from bottom of page) there is *described* a reciprocating tool, having a flange or "*guard*," which runs along the face or bottom of the sole.

In the hand tools used before 1867 (Dep. *Ashe*, int. 3, "*Defendant's Exhibit Hand Tools Nos. 3, 4, 5*," pp. 286, 287) there is a similar "*guard*" which is designed and adapted to be on the side of the face or bottom of the sole.

The trade names affixed to the different parts of the tool, as shown by the Snell circular introduced (Dep. *Coy*, cross-int. 34, p. 262), are, for the longer lip or flange which goes over the corner of the edge of the sole, "*guard*,"; for the smaller lip or flange which runs in the rand of the shoe, "*lip*" or "*rand guide*"; for the part of the tool which comes in contact with the edge of the sole, "*bed*"; and for the little projection between the "*lip or rand guide*" and the "*bed*," the "*bead*" (Dep. *Crisp*, cross-int. 25, p. 279, *Edson*, p. 315, int. 5.)

In organized machines for the purpose of burnishing the edge of the sole, two forms of burnishing tools have been employed; one kind was a reciprocating tool, and the other kind was a rotating tool. The reciprocating tool was substantially a section of the rotary tool; the rotary tool was substantially a circular or cylindrical expansion of the reciprocating tool.

Instances of these tools are found in the Thompson patent of Nov. 7, 1865, No. 50,856, where the rotating tool is used (p. 388); in the Cote patent of February 11, 1873, No. 135,694 (p. 392); in the Tayman patent, No. 136,790, dated March 11, 1873, where the rotating tool was used (p. 394); in the Carey patent of February 17, 1874, No. 147,552, where the reciprocating tool was used (p. 399); and in the

Ingalls patent already referred to, where the reciprocating tool was used (p. 378).

Besides, in said Ingalls patent it is stated that "*it will be "evident that in lieu of a vibrating tool, a revolving tool so "formed as to have the requisite bearings upon the top and "side edges of the sole and heel, and made to revolve in any "proper manner, can be used*" (p. 380, last clause).

ROTATING AND RECIPROCATING TOOLS EQUIVALENTS IN THE ART.

So that before the date of the Helms application for a patent (Dec. 7, 1875), the burnishing of shoe sole edges was familiarly done by machinery, either by reciprocating or rotating tools.

First Proposition. Reciprocating and revolving edge-setting tools were equivalent mechanism in and before 1875.

TRIMMING AND BURNISHING SOLE-EDGES, SIMILAR OPERATIONS.

It will also be observed, by reference to the Cote and Tayman patents, that trimming and burnishing were familiarily done by revolving tools on the same machine.

And by reference to the Carey patent it will be seen that trimming and burnishing was done by reciprocating tools upon the same machine.

Second Proposition. Trimming and edge setting upon the same machine were, before the date of the Helms patent, substantially similar operations, to be performed with like tools, the only difference between the two being, that for trimming they were cutting tools, and for burnishing they were rubbing tools, — sharp in one case and blunt in the other. The motions were alike and similiarly imparted, and one tool could be substituted for the other in the same machine.

RECIPROCATING EDGE-SETTERS MERELY WORKED THE OLD HAND TOOLS.

Third Proposition. Reciprocating machine-driven tools were, as shown by the exhibits, substantially alike, in their forms, to the hand tools already in use.

METHODS OF PRESENTATION.

The method of presenting shoes to the operation of the tool was also of two sorts:

In the Ingalls and Carey reciprocating machines the shoes were jacked. In the Gubault English machine, employing reciprocating tools, the shoes rested on a platform. In the Tayman trimming machine, the shoes were presented to the trimming tool by hand, the hand being supported in proper relation to the tool by a hook or finger-rest, adjacent to the tool. In the Thompson machine of 1865, which employed a rotary tool, the shoes were presented to the tool by hand, by the aid of an adjustable guide against which the sole was to be rested, and which was to be adjusted by means of a lever.

See also int. 3, p. 60, where Ashe enumerates divers patents in which the shoe is presented by hand, in some in an upward and in others in a horizontal direction.

Fourth Proposition. Hand presentation and jack presentation were perfectly well known in both rotating and reciprocating machines before the time of Helms' invention.

HAND REST OLD.

Hand presentation also, with the aid of a hook to support the hand, was shown in the Tayman edge-trimming machine described in the patent (of 1873) in these words: "*Q is a "finger support, seen in detail in figs.* 9 *and* 10, *which is se-*

"*cured to the swivel C by means of screws* g g. *It has on its* "*front end a curved projection*, h, *on which the operator places* "*a finger to steady his hand in holding the shoe and changing* "*its position*." (Tayman Patent, p. 395, last line.)

The cutting tool of the Tayman patent is made so that it has a projection or disk which runs in the rand and serves as a rand guide in trimming the edge of the shoe; and an inspection of the tools employed in other machines, and of hand tools, shows that that machine had, both for cutting and trimming, simple and usual tools.

The description of the Tayman original patent does not show that the face of the sole rested against the finger hook, and, from its form, it could not be so utilized.

The tools used in the machine made under the Helms patent of 1876 and in the defendant's machine, are made and mounted substantially like the tool in the Ingalls patent, — a tool allowed to have a limited swivelling movement on its longitudinal axis; and the working face of the tool, as to *bed*, *guard* and *lip* or *rand guide*, is substantially the shape of the old-fashioned hand tools.

MANNER OF OBTAINING THE HELMS PATENT.

The proceedings in the Patent Office in connection with the application of Helms for his patent are set forth in the file-wrapper and contents, printed on pages 382–386 of this record.

When application was made for the patent, Helms considered that the main feature of his invention was the finger rest, and so stated in the original specification and made it the subject of his original first claim (page 383):

"The finger rest D is the main feature of my invention,

"all the other points of novelty in my machine relating to "new combinations of old elements."

"What I claim as my invention is, —

"First. In a burnishing machine the finger rest D con- "structed and operating substantially as described."

The claim was rejected on the patent to B. J. Tayman, No. 136,790, of March 11, 1873 (pp. 394, 396), which shows an edge-trimming machine, having a finger rest or support. This rejection was acquiesced in; the claim was erased, and the following substituted in place thereof: —

"In view of Office letter of December 13, 1875, I hereby "amend my application — edge setter, filed December 7, "1875, — as follows: —

"(1) By erasing the first clause of claim and substitut- "ing the following:

"*First.* In combination with the burnishing tool and the "rest for the face of the sole, the finger rest D, substantially "as described."

Helms File-Wrapper, p. 385 of record.

No mention had been made in the specification, originally filed, of a "rest for the face of the sole," and the Examiner in his next letter, January 11, 1876, said, "It is not under- "stood what is meant by the words in the first claim now "presented, viz., 'the rest for the face of the sole'."

The Examiner also called attention to the fact that the finger-rest was stated to be the main feature of the alleged invention and said, —

"A rest for the same purpose is shown in Tayman's patent "and the other elements claimed in combination have been "shown by the references to be old separately; and if the "finger-rest performs any new function in this instance, in

"combination with the tool and holder here used, it should "be clearly stated" (p. 385).

In compliance with this letter, Helms' attorney, in order that it should be *clearly stated* what new function the finger rest performed *in this instance*, amended the specification by adding to the paragraph, which originally read as herein printed in small capitals, the words printed in italics:

"MY MACHINE IS EXTREMELY SIMPLE AND CONSISTS OF A "HEAD OR STANDARD CARRYING A TOOL-HOLDER HOLDING A "TOOL, FOR SETTING OR BURNISHING THE EDGES OF THE "SOLES OF BOOTS AND SHOES, AND A FINGER REST TO AID "THE WORKMAN IN HOLDING THE EDGE UP TO THE TOOL "(p. 382), *and the face of the sole against the rest which is "just below the burnishing part of the tool"* (p. 385).

These additional words were inserted in the specification to show the new function the finger rest performed *in this instance* as demanded by the Examiner.

Helms' attorney, in further response to said demand of the Examiner, made an addition to the paragraph descriptive of the operation of the machine, as shown by the following similar printing: —

"THE OPERATION IS AS FOLLOWS: THE WORKMAN HOLDS "THE SHOE FIRMLY IN HIS HANDS AND THUS PRESENTS THE "EDGE TO BE BURNISHED TO THE TOOL, WHICH RECIPRO-"CATES WITH GREAT RAPIDITY; ABOUT EIGHTEEN HUNDRED "TIMES PER MINUTE I FIND GIVES THE BEST RESULTS; "THE WORKMAN PASSES (PRESSES?) THE EDGE UP AGAINST "THE TOOL (p. 383), *and the face of the sole against the "surface which projects below the tool"* (p. 386).

"AND GRADUALLY MOVES THE SHOE SO AS TO BRING ALL "PARTS OF THE EDGE TO ITS ACTION, STEADYING THE SHOE BY

"THE AID OF THE FINGER REST D, ESPECIALLY WHEN BUR-"NISHING THE CORNERS OF THE TOES (p. 383).

Also by striking out the paragraph which stated that the finger rest D was the main feature of the invention, substituting the following: —

"The combination of the finger rest D with the burnishing "tool and the rest for the face of the sole is the main feature "of my invention; all the other points of novelty in my ma-"chine also relate to new combinations of old elements" (p. 386).

It appears from the last clause of this paragraph that the patentee admitted the fact that each of the three elements in combination mentioned in the first clause of the paragraph, viz., "the finger rest," "the burnishing tool," and "the rest for the face of the sole," were old elements, and that the new function of the finger rest which the Examiner required to be pointed out was the "rest" or support it afforded for the face of the sole, it being "the surface which "projects below the tool."

The finger rest and its function affording, a support to steady the hand, was old, as appears from the Tayman patent.

The burnishing tool and its reciprocating holder were both old and shown in the Ingalls patent No. 28,181, dated May 8, 1860 (p. 379), and the Carey patent No. 147,552, dated February 17, 1874 (p. 400).

A surface projecting below the burnishing tool affording a rest for the face of the sole while burnishing the sole edge was also old and shown in the McLaughlin patent No. 113,546, dated April 11, 1871 (p. 390), in the Thompson patent No. 50,856 dated November 7, 1865 (p. 388), and in the English patent to Gubault of 1868 (p. 376).

In neither of these three last mentioned patents, however, was there any statement that the rest or support for the face of the sole could be also employed as a finger rest or support to steady the hand.

It would seem, therefore, from the language used in the specification, original as well as amended, that the things referred to in the first claim of the patent, and forming the combination claimed therein, were, —

(1) The finger rest or hook D, which could be grasped by the finger.

(2) The burnishing tool designated as C.

(3) "The front surface of the finger rest D, which pro- "jects just below the tool" C, against which the workman "presses the face of the sole."

In the specification as originally filed the only elements of the present first claim mentioned were the finger rest D and the burnishing tool C, and but one function was given to each:

"My machine is very simple and consists of a head or "standard carrying a tool-holder holding a tool *for setting or "burnishing the edges of the soles of boots and shoes.*"

This is the only function mentioned of the tool C.

"And a finger rest to aid the workman in holding the edge "up to the tool . . . steadying the shoe by the aid of the fin- "ger rest D, especially when burnishing the corners of the "toes."

This is the only function mentioned of the finger rest D.

The concluding clause of the specification being, "The "finger rest D is the main feature of my invention, all the "other points of novelty in my machine relating to new com- "binations of old elements." And the claim made was —

" *First.* In a burnishing machine, the finger rest D, con-
" structed and operating substantially as described."

Upon reference by the Examiner to the Tayman patent, this claim was erased and the present one substituted.

" First. In combination with the burnishing tool and the
" rest for the face of the sole, the finger rest D, substantially
" as described.

This is the first mention of any " rest for the face of the " sole." No allusion whatever to it in the specification, no designation, in the remotest particular, to such a part. The specification in speaking of what the drawings represented, said, —

" A being the head, B the tool holder, C the tool, and D
" the finger rest." . . .

The finger rest D is a hook-shaped piece secured to the head " near the tool, as shown in the drawings."

Attention being called by the Examiner to the fact that a rest for the same purpose as that set forth in the specification, *i.e.*, " to aid the workman in holding the edge up to " the tool," and also steadying the shoe by its aid, " espe-
" cially when burnishing the corners of the toes," was shown in the Tayman patent, and that the other elements claimed in combination had been shown by the references to be old separately, the Examiner then said, " and if the finger rest
" performs any new function in this instance, in combination
" with the tool and holder here used, it should be clearly
" stated."

The new function of the finger rest pointed out by the solicitor, in response to this letter, was as follows: By inserting after the words " and a finger rest to aid the work-
" man in holding the edge up to the tool " the words " *and the*

"*face of the sole against the rest which is just below the bur-*
"*nishing part of the tool.*"

And where the operation is described, by inserting after the words "The workman passes (presses?) the edge up "against the tool," the words "*and the face of the sole* "*against the surface which projects below the tool.*"

The language used clearly distinguishes the "rest for the "face of the sole" from the tool, which is referred to throughout the specification as *the tool* and is marked in the drawings "C."

As already stated such a surface, but without the finger rest or support, had been shown in the prior McLaughlin and Thompson patents.

Defendant submits that in accordance with a fair interpretation of the language used in the specification, and in the correspondence with the Patent Office, such as is ordinarily given to words employed, the 1st claim of the Helms patent in suit, taken in connection with the specification and drawing, means that the element of the combination designated as "the rest for the face of the sole" is the front surface of the piece or part designated as the finger rest D, which projects just below the burnishing tool.

The patentee Helms, when called by the defendant, fully and clearly sustained this position. See *Helms*, direct testimony, ints. 1–6, p. 47; also cross-ints. 42, 43, 44, pp. 53, 54; int. 51 and cross-ints. 52, 53, 54, p. 55.

"*Int.* 3. Please state what you intended to be the rest for "the face of the sole in burnishing sole edges with such ma-"chine at the time you filed your application for said patent.

"*Ans.* What I intended to be the rest for the face of the "sole when burnishing a shoe edge, was a finger hook so "constructed that it would at once answer for a rest of the

" sole of the shoe and a guide to help the operator to steady " the shoe under the action of the polisher while in motion " by grasping the hook with his finger."

A witness, John Van Aernam, who used the first machine put out under the Helms patent at the factory of Feary & Sons, Albany, N.Y. (see cross-int. 12, p. 48, *Helms* Dep.), testified that during four seasons (about eight months to a season, see cross-int. 9, p. 57) he burnished sole edges on the Helms machine, and while doing so always rested the face of the sole against the finger hook. Dep. *Van Aernam*, ints. 4, 5, 6, 7, p. 56; cross-ints, 22, 23, 24, 26, 27, 28, 30, pp. 58, 59.

A witness, George Osborne, foreman of the shop of Warren A. Howard, at Brockton, Mass. (who used the second Helms machine as stated by Fullerton, cross-int. 90, p. 105), testified that when this machine was first used at Howard's factory, they placed the edge of the shoe against the tool and the sole of the shoe against the finger rest, and so used it for about four weeks.

Dep. *Osborne*, *ints.* 6, 7, 8, 9, p. 77.

It is not disputed that these machines were so used; but Helms, after having been called as a witness on behalf of defendant, when he fully stated what his invention was intended to cover (see Dep. of *Helms*, ints. 1–6, p. 47; cross-ints. 42–44, pp. 53, 54; ints. 41–54, p. 55) was afterwards called by complainant in rebuttal, to contradict himself.

This evidence was duly objected to by counsel for complainant, and it is here submitted that all of the testimony of Helms taken under the guise of evidence in reply should, where objected to, be eliminated from the record.

See Dep. *Helms*, pp. 133–136.

The utmost that could be claimed from this deposition is that Helms' original invention, as already stated by him, consisted in having the front face of the finger rest constitute a rest for the face of the sole; that, in accordance therewith, the first machines were made with the finger rest projecting far enough forward under the burnishing tool so that the face of the sole might be rested thereon. The whole of this re-examination of Helms shows an attempt on the part of complainant's counsel to confuse Helms and make him contradict testimony he had already given. Complainant's counsel assumed, and based his questions upon the assumption, that Helms had signed two applications; that the first was one in which he described the use of the finger rest as a rest for the face of the sole, and that the second was the application filed, in which he dropped out the feature "the rest for the face of the sole," because experiments, afterwards made by the complainant's workmen on the machines first built by Helms demonstrated that the rest for the face of the sole as devised by Helms was not only useless, but even a detriment to the operation of the machine.

It is to be observed that when the assumed second application was filed no mention was made for the rest for the face of the sole. It was only when the Examiner called upon Helms' solicitor to state some new function of the finger rest that "rest for the face of the sole" was interjected into the specification.

The specification and claims as filed show that it was the understanding of the inventor and his solicitor that the main feature of the invention consisted in the finger rest, and when it was found that there was nothing novel or patentable in the finger rest, then Helms' original plan of construction was in words inserted into the claim, viz., "rest for the face of "the sole," but without designating, by letter or figure, which

was the particular part referred to except by the language used, that it was "the surface which projects below the tool."

Upon further demand of the Examiner as to what was meant by those words, and what new function the finger rest performed, the amendments were made, stating that "the rest "for the face of the sole" is the part "*which is just below the* "*burnishing part of the tool*" and is "*the surface which projects* "*below the tool*," and that the new function of the finger rest "was to aid the workman in holding "*the face of the sole* "*against the rest which is just below the burnishing part of the* "*tool*," and that the workman presses "*the face of the sole* "*against the surface which projects below the tool.*"

Yet in the face of this unequivocal language complainant's counsel now contends that the words "rest for the face of the sole," means a part of the burnishing tool.

To refute the testimony of Osborne, one of the defendant's witnesses, who testified as to the use of the Helms machine with the front surface of the finger rest as a rest for the face of the sole, the complainant called Warren A. Holmes, who testified that the machine came to Howard's factory in the fall of 1875 (int. 3, p. 88).

He also testified that he did not know that Osborne ever burnished shoes on that machine (int. 7), and all that he knew about Osborne's ability to burnish shoes was the fact that he, Holmes, had not seen him do it (cross-ints. 25, 26, and 27). Complainant also attempts to overturn the direct and positive testimony of defendant's witness, Helms, the inventor of complainant's machine (that his invention embraced the finger hook formed to serve as a rest for the face of the sole), by making him their own witness in rebuttal. His testimony is found on pages 133-150.

The key-note to this second deposition of Helms is found on page 54, cross-interrogatory 45, where Helms was assailed

with the charge of "*attempting to aid infringers to kill the patent which he had sold to Dr. Flagg*," as if a man's lips were or should be sealed to utterance of the truth because another man had paid him money for value received. The answer to that interrogatory is worthy of careful study, as containing a clear statement of his invention, when taken in connection with his previous testimony:

"*Ans.* I am not aware of any such thing. I am simply "stating the facts under which I conceived the idea of "making that first machine, and I think it is fair to say that "the specification of this patent shows clearly that that was "my intention."

In Helms' direct examination by complainants, as their witness, amidst the hesitating and limping statements which he makes, is the assertion that the Feary machine (No. 1) was made to be used with the finger rest as a rest for the face of the sole (int. 6, p. 134). And the only reason adduced by him why his former testimony should be changed was the inference drawn by him from complainant's copy of the Patent Office model of his machine.

It is significant that complainants do not bring or attempt to bring any witness from Feary & Sons, where the first machine was used, as Van Aernam testifies, for four seasons, with the finger hook serving as a rest for the face of the sole; and where, from the length of time it was alleged to be so used, it could have been positively disproved if not true. And more especially, as Van Aernam testified (int. 6) that he taught other operators to use the machine in the same way as he, Van Aernam, did; and further, that Feary & Sons are large owners in the capital stock of the complainant company ("Complainant's Exhibit Certificate," p. 251, and *Helms*, cross-int. 30, p. 51.)

But instead, complainants bring one witness from Howard's, whose testimony is, in substance, that he did not see Osborne so use the machine; and they endeavor to neutralize the direct, positive, and clear testimony of the inventor, Helms, as to the double use of the finger hook, by inducing him to testify that his Patent Office model looks as if the hook did not serve as a rest for the face of the sole.

It is true that complainants call Fullerton, who is interested in the complainant company, to testify as to manner of use of machine No. 1 at Feary & Sons; and in answer to interrogatory 29 he swears that Van Aernam's testimony, in regard to resting the face of the sole against the finger hook, "*is not* "*true.*"

Yet upon cross examination, Fullerton admits (cross-interrogaties 136, 137) that No. 1 machine went to Feary & Sons in April; that he, Fullerton, was not there till October, and till then did not see the machine in operation; that he does not know the name of any operator he afterwards saw using the Helms machine at Feary & Sons' (cross-int. 142), and therefore does not know how Van Aernam used it; and that all he knows about the use of the machine at Feary's is only matter of inference (cross-ints. 43, 44, 45).

As Fullerton was, from 1875 to 1881, the active man of Dr. Flagg, and also since then till now has been interested in complainant's machine; and as Dr. Flagg is the central figure of the complainant corporation (see *Fullerton*, ints. 3, 4, cross-ints. 75–82), therefore it is deemed proper to call attention, somewhat in detail, to his testimony in relation to the finger hook and rest for the face of the sole. It appears that, in 1875, Helms brought to Boston from Poughkeepsie, N.Y., an embryo burnishing machine from which complainant's machine was developed (*Fullerton*, int.

3.) The finger hook in this machine was "*very close to the "lip of the iron*"; it was very broad, and "*was, perhaps, "twice as wide as we have them now.*" That Helms "*expected "to touch the finger rest with the bottom of the shoe*" (int. 16). But Fullerton states that one of the first things done was to move the finger rest back. Yet Fullerton asserts that the subject of "*the face of the sole touching the finger rest*" was never brought up between him and Helms, to his, Fullerton's, knowledge (int. 18). But though nothing was said, yet Helms' "*finger rest was altogether too wide, and not of the right shape at all,*" and they "*made from six to ten before "they were suited*" (cross-int. 60).

That Fullerton's memory is entirely unreliable is shown by his statement that "*the moment we* (they) *tried to run "the machine we* (they) *discovered where it* (the finger rest) "*ought to be, and put it there — back I mean*" (int. 19); while in cross-interrogatories 97, 98, he admits that Nos. 1 and 2 machines (Feary & Sons' and Howard's) were "*exactly "like the Patent Office model*"; and when these two machines "*went out from our factory the finger rest was too near the "tool holder*," and he *knows* that he afterwards changed the Howard machine "*to allow the finger rest to go farther back.*" Thus "*the moment they tried to run the Poughkeepsie machine, "they knew where the rest should be and put it there*"; yet both Nos. 1 and 2 machines had the hook like the Patent Office model (which is, as defendant insists, in strict accordance with Helms' claims), and had afterwards to be changed.

Fullerton states (cross-int. 122) that the Poughkeepsie machine had an L-shaped finger hook, formed of half-round iron, with the flat surface next the iron. But he does not know who suggested a curved hook (cross-int. 123), and he thinks there was no reason, except "*looks*," why the front

of the hook was kept parallel with the axis of the burnishing iron (cross-int. 124).

Fullerton testifies, in answer to cross-interrogatory 185, that his statement (int. 3) that he and Helms worked several days testing the original Poughkeepsie machine; that his statement (int. 16) that Helms at first expected to rest the face of the sole against the finger hook; that his statement (int. 19) that the moment they tried to run the machine they discovered where this finger hook ought to be and put it there; and that his statemant (int. 18) that the subject of the face of the sole touching the finger rest was never brought up between him (Fullerton) and Helms, were all true. And in answer to cross-interrogatories 188–190, he swears that the original Poughkeepsie machine (thus corrected in the position of the finger hook) remained at Maloy's shop two or three years, and that he and the draughtsman, the pattern and model maker, and Maloy, the machinist, all had or might have had the full benefit of that machine and the improvements it contained, as a guide and reference in getting up and constructing the drawings, patterns, model, and machines respectively for the Patent Office and for use.

Yet the patent model, and more especially the patent drawings, show a machine having much less than one fifth the average finger-hook adjustment that Fullerton swears that experience showed in a "*moment's*" use to be necessary; and the two first machines sold were made in the same manner. And but one conclusion can be arrived at, that it was long after the granting of the patent that they learned that the use of the finger hook as a rest for the face of the sole could be dispensed with; and then the attempt was made to claim that the "*guard*" of the burnishing iron was something else than a "*guard*"; that all along it had borne the wrong name.

Another indication that the front of the finger hook served, in the earlier Helms machines, as a rest for the face of the sole, is found in the fact stated by Fullerton (cross-int. 127), that the earlier improved hooks were corrugated on the rear side, as shown in "Defendant's Exhibit Fullerton Sketch," put in, in response to cross-interrogatory 196, and which, as further explained in cross-interrogatories 198, 199, were to secure the string that held the covering; and that if the sole rested against the hook, it would be desirable to have the front of the latter smooth.

It is evident, from Fullerton's answers to cross-interrogatories 200 and 202, that so many kinds of hooks were made that he actually has no recollection about the number of them.

From Fullerton's answers to cross-interrogatories 203–205, it seems clear that Helms' patent model was made according to the machines then being made at Maloy's; and this strengthens defendant's contention that the Helms machines were being made with the finger hook to serve as a rest for the face of the sole.

In further proof that the first claim in Helms' patent embodies as an element the finger hook formed to act as a rest for the face or bottom of the sole, Spencer L. Drake (an edge-setter for ten years) is called, who testified that shoes may be burnished on the Helms machine with the face of the sole resting against the finger hook. (Dep. *Drake*, ints. 5–8, p. 75.)

Joseph E. Crisp, an experienced expert called for the defence, testified that there is no mechanical impossibility in arranging a finger rest and cutter in relation to each other, substantially as the burnisher and finger rest are arranged in the Helms patent, and in so forming the cutter and burnishing tool as that the edge could be burnished with the sole

resting against the finger hook. (*Crisp*, cross-int. 30, p. 280, and int. 46, p. 283.)

Robert Ashe, inventor and patentee of defendant's machine, fully and clearly sustains the same views, and further states that "*the question of whether the bottom of the sole would* "*rest upon or press against the guard of the tool C, or the* "*front face of the piece D, or both, would depend entirely* "*upon the angle at which the sole edge may be trimmed.*" A proposition as obvious as any mechanical problem can be. (Dep. *Ashe*, cross-int. 70, p. 305.)

In answer to cross-interrogatory 71, Ashe testifies that within ten years he had seen *thousands of pairs of shoes so trimmed that they could be burnished on Helms' machine while the sole was pressed against the finger rest. And that it is very certain that* "*with the knowledge of the state of the art* "*possessed by those who constructed the machine shown in* "*complainant's patent, the finger rest D was brought in the* "*close relation to the burnishing tool there shown for some* "*definite purpose, which purpose evidently was found, upon a* "*more extensive knowledge of the art, not to be necessary.* "Hence the *alteration or deviation in practice with regard to* "*the position of that piece, from that shown in the drawings* "*of complainant's patent.*

And in answer to cross-interrogatories 75, 76, 81, 82 and 83, pages 307, 310, Ashe testifies that it is not impossible to burnish sole edges with the devices as shown in complainant's patent, "*that being entirely determined by the angle of the edge.*"

That if the angle of the sole edge be trimmed to correspond to the relation of the parts in Helms' patent, any one of "*reasonable skill*" can then burnish them with the sole resting against the finger hook.

Edson, a mechanical engineer and expert of thirty years'

experience, testified (cross–int. 34, p. 325) that "*the expres-*
"*sion rest for the face of the sole*" used in the first claim, in the absence of any explanation and in connection with the drawings, would be assumed by any person familiar with descriptions of previous burnishing machines to mean the front part of the piece lettered "D" in figs. 2 of the drawing of complainant's patent, as similar parts have been called rests in other burnishing machines; and in machines in general, the word "*rest*" is applied to something that is fixed, and the function of which is to assist in holding some other thing still while acting upon or being acted upon by some moving part.

Livermore, complainant's expert, testifies (p. 32, cross-ints. 97–99) that the finger hook in Helms' patent has means for adjustment towards the burnisher C; that if so advanced, its face would be in advance of the line of the guard of burnisher C, and that in such case "*the front face*
"*of the finger hook would constitute such a surface as is re-*
"*ferred to in the patent as the surface which projects below*
"*the tool.*" But he feels positive it is not the surface meant by applicant. It is submitted that it is more material to this issue what applicant led the Patent Office examiner to believe was the "*surface which projects below the tool*," than what any witness may think.

It is further admitted by Livermore (int. 119, p. 36) that when all parts of the burnishing tool, the rand lip, bed and guard, each burnish a part of the sole (as with round and bevelled edges), there is no surface, either below the tool or below the burnishing part of the tool, except the finger rest, against which the face of the sole can be pressed. When the Patent Office declined to allow Helms' first claim as it is in his patent, unless he could show some new function of the finger hook, Helms acquiesced, and assumed to

point out a new function of the hook. (*Livermore*, cross-ints. 125, 126, p. 36.) And Livermore admits (cross-ints. 166–168, p. 46) that, admitting it to be possible to burnish sole edges on Helms' machine with the face of the sole resting against the finger hook, he should under these conditions judge that the finger hook was referred to as the rest for the face of the sole. And it has been shown by Edson, defendant's witness (already quoted), that it is possible so to burnish sole edges.

Helms testified that he considered it feasible, on a great many kinds of goods (boots and shoes), "*to keep the tread "or bottom of the sole in contact with the face of the finger "hook while burnishing the toe portion of the shoe in a ma-"chine like that shown in his Exhibit Patent*" (int. 51, p. 72, Keith record). This testimony ought to be accepted by both sides, as both have called Helms as a witness.

In answer to interrogatories 13, 14, p. 63, 64, Ashe states that in his opinion the "*rest for the face of the sole*" meant the face of the finger hook D, and gives fully, clearly, and, it is submitted, conclusively, his reasons for such opinion. In interrogatories 16, 17, p. 65, Ashe gives his reasons fully why the guard of tool C *could not* have been meant as the rest for the face of the sole.

It is evident from Ashe's answer to interrogatory 27, p. 69, that two reasons operated to cause the dispensing with the hook as a rest for the face of the sole: one reason being, the increased expertness of operators; the other, that the first machines only burnished the fore part of the sole edge; while now the shank as well as fore part is burnished on the machine. Hence, as Ashe states, for six or seven years past no machines have been made which were adapted or intended to be used with the sole resting against the finger hook.

Ashe (int. 4, p. 86) states reasons, in view of the correspondence between the Patent Office and the solicitor of Helms' patent, why the finger hook is and must be deemed the rest for the face of the sole, and why that function is and must be the new function of the hook, without showing which, the Examiner refused to allow a patent.

Newhall, complainant's witness, their pattern maker, the maker of their original patent model, a mechanic of great experience, a shoe-maker for eight years, a maker of shoes "*from the tacking on of the soles*" (the first act) "*to the gum-*"*ming of the uppers*" (the last touch), a maker of "*edges* "*with both cold and hot kit*" (int. 51, p. 157), testified, in answer to cross-interrogatory 46, that where the prolongation of the line of the front face of the guard would pass through the finger hook as in "Complainant's Exhibit Helms Patent Office Model," there is no reason why the sole edge may not be burnished while its bottom or face touches the finger hook, provided the edge of the sole and the operative part of the burnishing iron are cut so as to coincide, as shown in "Defendant's Exhibit Complainant's Patent Drawing Enlarged," and "Defendant's Exhibit Complainant's Patent Drawing Enlarged No. 2"; that it is evident that sole edges may be burnished under such conditions.

If the testimony of a witness having the experience and ability of Newhall, who could have no motive for favoring the defendant, whose testimony in every word and line is stamped with inherent evidence of candor, honesty and truthfulness, is not to be believed when he states that under certain evident demonstrated conditions sole edges can be burnished while the sole rests against the finger hook, then it is useless to attempt to refute a proposition which, like complainant's denial of Newhall's statement, rests solely upon theory, backed by assertion, unsupported by any practical

test whatever. See also Newhall, cross-int. 44, p. 155, where he affirms the correctness of "Defendant's Exhibit Drawings."

And Livermore (in rebuttal, p. 161, cross-ints. 16, 17) admits the same facts as last above quoted from Newhall.

EXHIBIT DRAWINGS AND MODELS OF THE HELMS INVENTION.

Defendant introduced in evidence certain drawings illustrating the construction of the Helms machine marked, respectively, "Defendant's Exhibit Complainant's Patent "Drawing Enlarged" and "Defendant's Exhibit Complainant's Patent Drawing Enlarged No. 2," showing that the face of the sole may rest against the front face of the finger hook in the process of burnishing the edge.

These drawings were said to correctly represent the method of presenting the shoe to the Helms machine which was operated at the factory of Feary & Sons, Albany.

Dep. *Van Aernam*, int. 7, p. 56.
See also *Drake*, ints. 15–17, p. 82.

Complainant also introduced in evidence a drawing marked "Complainant's Exhibit Complainant's Patent Drawing Enlarged," which was said to represent the Helms machine, showing that the face of the sole could not rest against the front face of the finger hook during the process of burnishing the edge of the sole.

Dep. *Fullerton*, ints. 22–24, pp. 96, 97.

Various witnesses were produced on the one side and the other who testified as to the correctness and incorrectness of those drawings; but the matter may be summed up in these words: if the finger rest is moved far enough forward and

the front surface shaped at the proper angle of inclination, the face of the sole can be rested thereon during the process of burnishing the sole edge, but if moved fare nough back, it would be otherwise.

So also of "Defendant's Exhibit Helms Model" made in accordance with the drawings, by Ashe, one of defendant's witnesses.

Dep. *Ashe*, int. 12, p. 62.

Complainant's counsel asserts that it is incorrect and does not represent the machine shown in the drawings of the Helms patent, but that "Complainant's Exhibit Helms Patent Office Model" does correctly represent it.

Newhall, a witness called by complainant, upon cross-examination stated that neither of them exactly corresponded with the drawing, although he thought "Complainant's Exhibit Model" was the nearest.

Dep. *Newhall*, cross-int. 35, p. 154.

That as regards the relative positions of the finger hook and burnishing tool or iron, "Defendant's Exhibit Model" agreed with the Helms patent drawing.

Dep. *Newhall*, cross-ints. 36, 37, 38, pp. 154, 155.

It is admitted that the drawings of the Helms patent do not show a construction of exactly the same relative dimensions as the corresponding parts of the Patent Office model; but it is submitted that the drawings are less likely to be changed than the model, and that inspection will show that the "Defendant's Exhibit Model" is substantially correct in all its parts and proportions.

CONTENTION OF COMPLAINANT.

Complainant's counsel has admitted and will admit that all the elements of combination in the first claim of the Helms patent are old.

That the burnishing tool C, with its lip, bed, and guard is the same in all substantial respects as the hand tool in general and common use long before Helms' invention ; that the finger rest D is shown in the Tayman patent, where it performs the same function of affording a support to the hand when working around the corners of the toes.

But that instead of the invention contained in the first claim being for a combination of these two elements, viz., the finger rest and the burnishing tool, counsel for complainant contends that it is for the combination of the finger rest and the familiar burnishing tool and *its guard*.

There can be no ambiguity as to what is meant in the Helms patent by the "tool C." The drawings plainly show it to consist of the three well-known parts, *rand lip*, *bed*, and *guard*, attached in the usual manner to a shank, and when in operation each of these several parts perform the same functions in the same manner that they have always done.

NO PATENTABLE INVENTION IN THE COMBINATION OF THE FINGER REST AND BURNISHING TOOL.

If the meaning of claim 1 of the Helms patent be taken as complainant's counsel contends for, then there is no patentable combination shown, for the reason that each of said elements are old and when used together perform the same function, and no other, they each have always performed.

But it is not true that the "guard" of the burnishing tool

was intended to perform or can perform the new function, *i.e.* affording "a rest for the face of the sole" when the edge of the sole was burnished.

The three elements contained in the combination of the first claim are: a burnishing tool; a part projecting below the tool called a rest for the face of the sole; a finger rest.

The functions of the burnishing tool and finger rest were old and well known: the tool was for burnishing the edge of the sole; that is to say, any of the well known edges were to be burnished by the corresponding well known edge irons.

The patent says: "The workman holds the shoe firmly in "his hands, and thus presents the edge to be burnished to the "tool which reciprocates with great rapidity. . . . The work- "man passes (presses?) the edge up against the tool . . . "and gradually moves the shoe so as to bring *all parts of the* "*edge to its action*, steadying the shoe by the aid of the finger "rest D, especially when burnishing the corners of the toes."

There is no ambiguity in this language. What was meant by the words "edge of the sole to be burnished," and the "tool" to burnish it, is plain, clear, and free from doubt.

The lip of the tool burnished the bevel cut by the edge trimmer or cutter at the upper part of the sole edge, and the guard of the tool burnished the bevel cut at the lower part of the sole edge.

When, therefore, the patentee stated that "all parts of the edge" were brought to the action of the burnishing tool, he meant all the parts of that edge which had been formed by the cutters.

Any other interpretation or rendering of this language is absurd and frivolous.

The function of the finger rest is described to be that of

"steadying the shoe," "especially when burnishing the cor-"ners" of the toes."

It had the same function in the Tayman machine. For the Tayman patent recites that the finger support has on its front end "a curved projection, *h*, on which the operator places "a finger to steady his hand in holding the shoe and changing "its position;" that is to say, holding the shoe while presenting the side to the tool, and changing its position when presenting the toe part.

The last element of the claim, viz., "a rest for the face of "the sole which projects below the tool," and "is just below "the burnishing part of the tool," appears to be an entirely new element, for no burnishing tool, so far as appears from the proofs offered, ever had such a device or contrivance, nor anything like it, or any part which did or could by any possibility perform the function now ascribed to it by the complainant, either before or since the date of said patent to Helms.

This element constitutes really the gist of the improvement pointed out in the first claim. Each of the other elements — burnishing tool and finger rest — were old *per se*, performed no new function when brought into juxtaposition, accomplished no new result. It was not until this "rest for "the sole" was written into the specification and claim that the patent was allowed.

If defendant, therefore, only uses two of the elements recited in the first claim, viz., a burnishing tool and a finger rest, and has not had or used the third element, viz., a rest for the face of the sole projecting below the burnishing part of the tool, then he is not amenable to the charge of infringement.

That the defendant has not made, sold or used such a device is abundantly shown by the proofs offered in his behalf.

Defendant has really proved a negative, while complainant has not proven nor offered any evidence to show that the charge is true.

BURNISHING TOOLS, AND THE FUNCTIONS OF THEIR SEVERAL PARTS OLD AND UNCHANGED.

As to the point that the forms and shapes of the burnishing tools made, used, and sold by the defendant are old and have been well known for forty years past, and that their functions are the same when placed in a handle and operated by hand as when placed in a holder and operated by power, defendant calls attention to the following facts appearing in the affidavits filed, which by stipulation are to be taken and considered as depositions. (Stipulation, p. 10.)

Sylvester Flint has been engaged in the manufacture of boots and shoes since 1846, and has used these kinds of edge irons for burnishing the edges of the soles.

The irons have consisted of an upper lip or guide, for burnishing the rand and for keeping the iron in proper position for burnishing the sole edge.

They have also had a bed for finishing the sole edge, and "a projection commonly called a guard, *which is really a* "*part of the bed*, and serves to burnish the sole edges which "are bevelled, or those parts which are bevelled and not "reached by the straight part of the bed."

It is one of the functions of this projection called the guard to burnish bevelled edges. Flint mentions another.

"Where the sole is of soft leather, as in women's shoes, "the lower lip or guard, in conjunction with the upper lip or "guide, serves to compress the sole edge and hold it firmly "while being burnished."

The method of burnishing the edges by these hand-operated tools is described by him in substance as follows: —

The workman holds the shoe in such position that he can see the rand during the entire operation, holds the guide lip against the rand, and by that means keeps the tool in proper position for burnishing the entire edge. *No part of the face of the sole rests or can rest upon any part of these irons*; the guard is cut away at such an angle it cannot touch any part of the sole; "where the edge is bevelled it burnishes that part of the edge; *beyond the edge it does not touch the sole.*"

Flint further states that edge planes are first used to trim the edge to the desired shape and the face of the burnishing tool made to conform to the face of the plane.

Afft. *Flint*, pp. 189, 190.

Haynes M. Libby, who has been engaged in the business of making boots and shoes for sixty years, makes substantially the same statement, and says that the face of the sole does not and cannot rest upon any part of the face of these irons; that the guard burnishes the bevelled edges, or, when the edge is straight, burnishes the corner of the edge.

Afft. *Libby*, p. 191.

Ellis Delano has used these same kind of irons in the same manner and for the same purpose since 1856, confirming the facts stated by the foregoing affiants as to the shape of the face of the irons and the functions of the several parts.

Afft. *Delano*, p. 192.

Edwin J. Reed has produced edge irons which he has used since 1863 in the business of shoemaking, and each of the

three affiants above mentioned have produced irons they have used for thirty or forty years past.

Afft. *Reed*, p. 193.

These exhibits all show a lip, bed, and guard, and in fact complainant admits that these irons have been in use the length of time claimed, and have performed the functions above set forth.

Wm. J. Martland has made these irons and edge planes since 1856. He has made the irons for use in holders to be operated by hand and for use in holders to be operated by power, and positively states that the several parts of the face of the iron have the same functions and operate in the same manner to produce the same result, whether used by hand or in a machine.

After stating the manner in which the tool is operated by hand, Martland describes the manner in which it is operated by power, viz., that the operator presses the rand against the lip of the reciprocating tool, using that as a guide, and also presses the sole edge against the bed of the tool as well. The pressure is upward toward the rand lip. By this means the whole edge is properly burnished in the same manner as when the tool is operated by hand.

He further states that the lower lip or guard serves to burnish the lower corner of the edge in straight edges, and the bevelled edge when the edge is bevelled, *but in no case does any part of the iron touch the face of the sole, and there is no part of the iron which could serve as a rest for the sole.*

He further states that the thickness of soles vary even in the same shoe, and that as the rand is *the* important part to be burnished, it would not be burnished unless the sole edge was held up against the rand lip of the tool at all times.

He also states that when the Union Edge Setter Company, the complainants, were first getting their machines into the market, the tools they were attempting to use were brought to him to be recut, as they did not operate properly.

These tools differed from the old form and shape of edge irons, being much wider and the guard much longer.

It is quite probable these were the irons the patentee contemplated using when he applied for his patent, and imagined he would have a rest for the face of the sole as well as a finger rest, each of which parts appeared in the Tayman patented device.

But these tools would not operate, although many experiments were made with them, and finally the Union Edge Setter Company, at the suggestion of this affiant, adopted and have ever since used the old well-known edge irons.

Afft. *Martland*, pp. 193–195.

Isaac A. Dunham, a machinist and inventor of shoe tools, consisting of edge planes, rand knives, and edge burnishers, states that since 1857 he has been engaged in the manufacture of these tools.

Previous thereto was a practical boot and shoe maker, and had used these tools in the said business and seen them used by others.

The manner of treating the edge of the sole is described by him as follows when the hand tools were employed : —

The rand knife was first used to cut a thin shaving from the upper edge of the sole ; next, the edge plane was used to give the desired shape to the edge ; *and then the burnishing iron was employed to burnish the parts cut by the rand knife and edge plane.*

In using the edge plane, there is a lip which enters between the sole and upper, and acts as a guide, being held

against the rand; and in using the burnishing iron, the lip of that tool is placed upon the rand and acts as a guide, following in the path cut by the edge plane.

The shoe is held with the upper towards the workman, so that he always has the rand of the shoe in view, and consequently the rand lip of the edge iron.

If the sole edge be bevelled, the guard burnishes the bevelled part; if it be straight, it burnishes the corner of the edge.

He further states that the same kind of burnishing tools are used in the machines of the Union Edge Setter Company and in those of the Shawmut Machine Company, the maker of defendant's machine; that the workman holds the sole edge up against the rand lip and bed, and that all the several parts of the tool operate in precisely the same manner as when used in hand tools, *and have no other function or functions*.

That no part of these irons can or does form a rest for the face of the sole; the guard serves to burnish the lower corner of the sole edge in straight edges, and the bevel in bevelled edges, *that being the only function it does perform*.

Afft. *Dunham*, pp. 195–197.

Rufus Bryant has been engaged, since 1873, setting sole edges by machinery, and before that time used hand tools. He has operated the Dodge & Fifield setter, the Union edge setter, the American edge setter, and the Shawmut edge setter (the defendant's machine), at the present time using both the Union and the Shawmut machine.

He knows the construction and form of the irons used for setting edges, and *has many times taken the tools used in these machines, put them in holders and used them by hand*.

He states clearly the manner in which these tools operate

in the machines mentioned: that the sole edge is held up against the rand lip as a guide; that no part of the guard affords a rest for the face of the sole, does not touch it; that it serves to burnish the edge in exactly the same manner as when used in a hand tool, and has no other function.

Afft. *Bryant*, pp. 197, 198.

Silas Davenport has used these irons for thirty years past; at present is foreman of the room where hand and machine sewed work is made; describes the manner the irons are used by hand and when in the Shawmut machine, the same being defendant's machine, and says they are of the same form, used in the same manner to accomplish the same result; that there is no rest for the face of the sole, and no part that could be used as such.

Afft. *Davenport*, pp. 199, 200.

Samuel N. Corthell is familiar with all methods of finishing the edges of the soles of boots and shoes, and the tools which have been used for that purpose during the past twenty years. Has invented and patented various improvements in machinery for trimming sole edges and for burnishing them.

Is familiar with the machines sold by the Shawmut Machine Company (defendant's machine), and the irons used in them; they are of the same form and shape as the hand tools which have been used for twenty years past; that when operated in these machines, *each and every part of the iron performs the same function and in the same manner*, and accomplishes the same result, as when operated by hand, and *does not perform any other function*.

He describes the manner in which sole edges are trimmed and burnished by hand, and then the manner in which they

are trimmed and burnished by machinery; he further states that the edge iron projects at an angle of about twenty or thirty degrees, so that when the shoe is brought up to the tool the edge naturally comes in contact with the rand lip, and is held there throughout the operation.

This affiant made several diagrams of the face of edge irons commonly used, showing the position of the sole edges when held against the tool.

Afft. *Corthell*, pp. 200–203.

These diagrams are upon the exhibit sketch marked "Corthell Sketch."

It is apparent, from the facts stated by Corthell as well as by the others, that if an operator should attempt to burnish a sole edge by pressing the shoe towards the guard, the sole would slip down the inclined face of the guard, and the upper lip or rand lip strike into the upper leather, cutting or marring it. No sole edge was ever burnished in that way, and no witness has been found, or can be found, that ever burnished a shoe by hand or by machinery who will say that he ever attempted to burnish the edge of a sole in that manner.

Spencer L. Drake attempted to burnish two sole edges and use the guard of the tool as a rest, with the result that the upper was cut and injured by the rand lip. See —

"Defendant's Exhibit Drake's Bevel Edge Shoe."
"Defendant's Exhibit Drake's Square Edge Shoe."
Dep. *Drake*, ints. 2, 3, pp. 80; ints. 10, 11, p. 81.

In burnishing the edges of soles only that part of the tool which burnishes touches the sole, and the rand lip is always

used as the guide against which the sole is pressed; not against the guard, as that would ruin the shoe.

Dep. *Drake*, ints. 11, 14, p. 81; cross-ints, 22–24, p. 83; ints, 7, 8, 9, pp. 270, 271.

J. Wesley Dodge, a machinist and inventor of machinery for trimming and burnishing the edges of boots and shoes, has been engaged in the business of constructing these machines since the year 1874.

He is the inventor of the machines made and sold by the Shawmut Machine Company, one of which is that used by defendant and complained of in this suit, and has had the charge and superintendence of finishing and preparing them for sale. He has been familiar with the tools or irons used in these machines, as well as the irons used by hand for burnishing sole edges.

His statement is full, clear, and exhaustive as to the construction of these tools, their functions, and the manner in which they have been used by hand and by machinery.

Defendant calls especial attention to this affidavit of Dodge and to each and every part thereof. It clearly establishes the fact that there has never been a rest for the face of the sole in or upon any part of the burnishing tools used in the machines of their manufacture.

The summing up by this affiant is the only part of the affidavit which appears in this brief, and is as follows:—

"From my familiarity with machines for trimming and setting the edges of the soles of boots and shoes, and the irons or tools used therewith, their constructions, modes of operation and functions, as well as from my knowledge of the machines and edge irons made and sold by the Shawmut Machine Company, I can positively state that no one of the burnishing tools or edge setters sold by said company, or

used in their machines, have had a surface which projected below the burnishing tool, or which is just below the burnishing part of the tool, against which the face of a shoe sole has been rested or could be rested; and I do not believe that any burnishing tool has ever been provided with such a device or contrivance, and used in any burnishing machine; and further, if a burnishing tool were provided with such a device, and was attempted to be used by holding the face of the sole against it while the edge was attempted to be burnished, the result would be a failure so far as the edge was concerned, whatever might be the result as to burnishing the face of the sole."

Afft. *Dodge*, pp. 204–209.

There is no testimony in contravention of this statement, and none can be found. Moreover, it is a physical impossibility to hold a shoe sole in such a manner that the face of the sole will rest upon the guard of the burnishing tool and at the same time burnish the edge of the sole.

George E. Walker, who has been practically engaged in shoe making for thirty-five years past, and acquainted with the construction and operation of all tools and machinery employed in finishing the edges of boot and shoe soles, says there has been no change in the burnishing tool during the past thirty-five years except in styles, and no change in the manner of using it, except to drive it by steam power instead of hand power; that, so far as it relates to the action of the burnishing iron upon the sole edge and the result produced, it is the same now in every respect that it has been ever since he worked at the business.

When shoe sole edges were burnished by hand, the rand of the sole was always next the eyes of the operator, so he could see that the rand lip of the tool was kept properly pressed

against the rand; in the use of machine burnishers the rand is always toward the operator just as in hand burnishing, and for the same reason.

If a burnishing tool be secured in a handle and used to burnish a sole edge by hand, then removed from the handle and secured in a power burnisher and used to burnish a sole edge by power, there will be no possible difference in the effect produced upon the respective sole edges if equal skill be employed, and there will be no sort of difference in the operation of the burnishing tool, its rand lip, bed, or guard, while burnishing the one edge than while burnishing the other.

The finger hook is convenient at the toe part of the sole but it does not change or modify in any manner the action or effect of the burnishing tool, which operates in the same manner and produces the same result in all respects that it did when used by hand.

Afft. *Walker*, p. 231.

Charles L. Parker, who has had a practical acquaintance with hand burnishing sole edges for over thirty years and with the various burnishing machines since their introduction, says, —

"There is no sort of difference, either in the burnishing "tools themselves or the manner of their operation, or in the "effect or result which they produce, when used by hand or "in the Union edge setting machines. These facts are "apparent from my common practice, whenever I wish to "hand-finish a sole edge of a size or different from any hand "tool that we have, for I then secure the proper machine "tool — such as used in the Union machine — in a handle, "and use it as a hand tool; and the same tool, its rand lip "and guard, operate the same and produce the same identi-

"cal result when used in the machine or by hand. The shoe "in both cases is held with the rand towards the operator, so "that he can keep the rand lip upon the rand; and the tool is "impelled by short movements along the sole edge, and the "guard, if the sole be of uniform thickness, bears against the "sole close to the edge; but if the sole be of uneven thick- "ness,—as is the case with all but the best quality of work,— "then the guard only touches the sole at its thickest places. "The introduction of burnishing machines has not effected any "change, either in the burnishing irons themselves nor in the "way or manner of their operation upon the sole, nor in the "effect or result which they produce upon the sole. The only "change has been that the burnishing iron is moved back and "forth by steam power instead of by hand. The finger hook "employed in the Union edge setter is a convenience; but "the burnishing iron employed at the same time is doing just "what it did long before that machine was heard of, and is "producing just what it always did, and what it will now pro "duce without the hook."

Afft. *Parker*, p. 232.

John B. Morrison, who has been practically engaged in the manufacture of boots and shoes for thirty-five years, says he has been employed as foreman in various shops and factories, and had the care of hundreds, if not thousands, of workmen in this business; that he was practically familiar with the method of burnishing sole edges by hand before the introduction of power machines for that purpose, and was also familiar with the various machines, including the Union edge setter, for burnishing sole edges. He further says the introduction of any or all of these machines has not led to any change whatever, either in the burnishing iron itself or in its mode of operation, or in the result, effect, or

product of the iron. The only change consists in the fact that the iron is moved by steam power instead of the muscles of the operator. The shoe has always been held, and is now held, with the bottom or face of the sole away from the operator, so that he can see and control the action of the rand lip upon the rand itself; and the guard may or may not touch the face of the sole, just according as the sole is even or uneven in thickness, all but the best work having soles uneven in thickness. The finger hook used on the Union edge setter is a matter of convenience; but it does not in any manner affect or change the action of the burnishing iron or the effect it produces, for the hook is never used except at the toe part of the sole, and that part, when finished, is in no respect better done than the other parts of the edge, and this hook does just what it would in any other machine, — it furnishes an object for the operator to grasp with his finger, and is convenient but not indispensable.

Afft. *Morrison*, p. 233.

William B. Cushing, engaged in the manufacture of boots and shoes for twenty-five years past, says he is familiar with the various methods of finishing boot and shoe sole edges, and familiar with the Union edge setting machine, so called, and with the operation thereof.

The burnishing irons used in that machine differ in no respect from those used by hand both before and since the introduction of burnishing machines, and operate in the same identical manner and produce the same identical result as when used by hand. The hand operators and the machine operators always hold the boot or shoe with the bottom or face of the sole from them, so as to bring the rand next the eyes of the operator; because the rand lip of the iron must

always be kept in contact with the rand of the sole in order to properly finish the latter.

The only change in the use of the burnishing iron that burnishing machines have effected, consists in the fact that the iron is moved back and forth by steam power instead of by hand; for the boot or shoe is held in the same position relatively to the operator; the iron, its rand lip, and guard are the same, it acts or operates the same, and produces the same effect or result in all respects upon the sole as when the iron was used by hand.

Any reciprocating burnishing iron may be used alternately by hand (by securing it in a proper handle), and then in the Union edge setting machine, and the work done upon the sole will be the same, if the same skill be exercised, because the iron is made to perform a certain duty, and it is impossible for it to vary the performance of that duty by doing anything else or something else at the same time. The finger hook in the Union edge setter is a convenience, as the operator can get round the toe part of the sole faster than without it; but the action, effect, and result of the iron is in no respect changed by the hook, for the iron always operated as it does in that machine, and produced quite as good work, and the hook in that machine does just what it would in any other, or with any other iron, — it furnishes something for the operator to grasp with his finger if he wishes, and is therefore convenient, but not indispensable.

Afft. *Cushing*, pp. 233, 234.

Robert Ashe, who has had a long experience with the methods and means employed for burnishing sole edges, testifies to the same effect — that the finger hook employed in complainant's machine is convenient but not indispensable. It is only used at the toe, and the action and effect of the

burnishing iron at that part of the sole is not in any respect different from what it is at the other parts of the sole where the hook is never used. The hook in the Helms machine performs just the same office that it did in Tayman's machine. It is an object which the operator may grasp with his finger to steady his work; and the operator in using either machine will use the hook when it is desirable, and when not desirable he will not utilize it.

Afft. *Ashe*, pp. 234–236.

From these statements, which are uncontradicted, it appears that the burnishing tool, when used by hand, performs the same function that it does when operated by power; in each method the rand lip is entered between the top side of the sole and the upper leather when the sole edge is pressed against the tool, whereby the rand and upper corner of the sole edge is burnished; the bed of the tool burnishes the edge, and the guard, which is really a continuation of the bed, burnishes the bevelled part of the edge or that part not touched by the straight part of the bed; or, in straight edges, burnishes the lower corner of the sole edge.

Different styles of edges require different shaped tools, but whether used with straight, curved, or bevelled edges the operative parts of the tool are made to conform thereto, so as to reach and burnish all parts of the trimmed edge, and no part of the tool touches the sole or sole edge, except the parts which are designed to burnish.

The finger hook performs just the same office that it did in the Tayman patent, and may be clasped by the operator's finger when desirable; but it does not in any manner affect, modify, or co-act with the burnishing tool or serve to change or alter its action or result.

There has been no attempt on part of complainant to con-

trovert the facts herein so fully established, viz., that hand tools were composed of the same parts as those used in the Helms machines and that they performed the same functions.

That when used in the Helms machine, the edge of the sole was pressed against the face of the tool, the upper part of the sole and the corner of the edge being held against the rand lip and guided by it.

That when the sole was soft, it was pinched between the rand lip and guard, and, where it varied in thickness, at times would not touch the guard, but was always held pressed against the rand lip.

That no part of the sole touched the guard except the edge or edge corner; and that no part of the sole touched the guard except that part of the edge which was designed to be burnished by the tool.

The affidavits which were filed by the complainant, and by stipulation are to be taken as a part of this record, admit all of these facts.

Affts. *S. E. Welch*, pp. 180–183.
G. A. Fullerton, p. 224.
H. W. Howard, pp. 226–227.
E. F. Spinney, pp. 227–228.

Some of these affidavits state that the finger rest performs a different function with a reciprocating tool than it does with a rotating tool, because with a rotating tool the finger rest only aids the workman in steadying his hand from the "pull" or "thrust" in one direction, while with a reciprocating tool it aids him in steadying his hand from the "pull" or "thrust" in two directions, one of which is opposite to the other.

But does this alter the function of the finger rest, which is for the purpose of steadying the hand of the workman while

pressing the sole edge against the moving tool, whether it moves in one direction continuously or part of the time in one direction and part of the time in the opposite direction?

All of the affiants on the part of complainant admit that the rand lip burnishes the upper part of the sole and upper corner of the edge, and that the guard burnishes the lower corner of the edge. No one pretends that the guard does anything else.

Complainant's counsel will probably insist and attempt to show that the "rest for the face of the sole" is the guard or longer lip of the tool C shown in the drawings of the Helms patent.

But it is admitted by all of complainant's witnesses that the guard does not touch the sole, except where it burnishes the sole edge when the edge is bevelled and the corner of the edge when it is straight, the same as when manipulated by hand.

If, therefore, that part of the guard which forms a part of the burnishing surface of the tool constitutes a rest for the face of the sole (and that is the only part which does touch the sole), then the claim would mean, in combination with the burnishing tool, the finger rest D, for the other element of the claim "rest for the face of the sole" *is* the burnishing tool, or a part of it at least.

In order to draw a claim in accordance with complainant's contention, it should read: "In combination with the parts "of a burnishing tool which burnish the upper corner and "edge of a shoe sole, and the parts which burnish the edge "and lower corner, the finger rest D."

Or, in other words, in combination with a burnishing tool the finger rest D.

I presume even counsel for complainant will not deny that

unless some part of the sole touches the guard there can be no rest for the sole on the guard.

Neither can he deny that whatever part of the sole touches the guard is thereby burnished, just the same as by the other parts of the tool; neither can he deny that the guard of a given tool will burnish a sole edge and corner to the same extent and touch the same portions of the sole, whether operated by hand or power, as in the Helms machine.

Counsel for complainant cannot avoid the conclusion that there is no rest for the face of the sole on the guard.

Or, if the burnishing part of the guard constitutes such rest, it is one of the parts of the old burnishing tool, performing the same function and no other, and is therefore included in the burnishing tool itself.

It is admitted by Mr. Livermore, complainant's expert witness, that "there was nothing new in the tool itself" (cross-int 14, p. 17).

When referring to the English patent of 1874 to Andrews, he says, "I find burnishing tools and mechanism for vibrat-"ing them. The only difference that I notice between the "tools of Andrews and Helms is, that the part which acts "on the rand is a roller in the Andrews tool, but is a lip "forming an integral part of the tool in the Helms apparatus."

Dep. *Livermore*, cross-int. 25, p. 19.

The construction of the rand lip is immaterial, the guard being the material part. The Andrews patent, therefore, shows the same kind of tool reciprocated by power.

Livermore further testifies that the guard in the Helms patent "performs the same function in the Helms machine "that it always performed in vibrating burnishing tools "having such a guard" (cross-int. 90, p. 31).

That it would not be anything but an ordinary well-known burnishing tool when not used in the Helms machine (cross-int. 100, p. 32), and that the tool C of the Helms patent would not perform any other kind of duty when used in machines described in Ingalls patent, Gubault patent, and Andrews patent (cross-int. 101, p. 32, 33).

That if the finger hook were removed from the Helms' machine, there would still be a burnishing tool and also a rest for the face of the sole, but no more so than when the tool was used by hand (cross-ints. 102, 103, p. 33).

These admissions of complainant's expert show conclusively that the burnishing tool C perform the same function and only the same function whether used by hand, or in other machines than Helms' or in Helms' machine, either with or without the finger rest. These admissions completely negative the possibility that there is any inter-action between the hook D and the tool C in Helms' machine.

Livermore further testified that the machine in the Andrews patent shows a tool having the essential form and capable of performing the function of the tool marked C in the Helms patent (cross-int. 104, p. 33).

Livermore further testified that if the burnishing tool had no guard like the tools shown in diagrams 12, 13, 14 and 15 of "Defendant's Exhibit Corthell Circular," and such a tool were used in the Helms machine there would be no invention, (cross-int. 132, p. 38), and that the first claim of the Helms patent would be infringed when the tool had a guard and would not be infringed when the tool had no guard, each of said tools being old and well known (cross-int. 134, p. 38).

Defendant submits that, from the evidence produced by his witnesses, and the admissions on the part of complainant's witnesses it clearly appears that in the Helms machine the finger hook and the burnishing tool, with the integral part of

the latter called the guard, each and all perform the same identical functions that they had performed long before the alleged invention of Helms; and, further, that there is no such inter-action of the parts, no such qualification of the action of any one part by any other part or parts as to create a patentable combination in the sense required by the rule many times laid down by the Supreme Court.

The following are a few of the cases in which this doctrine is laid down: —

Miller v. *Foree*, 116 U.S. 22.
Thompson v. *Boisselier*, 114 U.S. 11.
Hollister v. *Benedict*, 113 U.S. 59.
Phillips v. *Detroit*, 111 U.S. 604.
Penn. R.R. Co. v. *Locomotive Co.*, 110 U.S. 491.
Tack Co. v. *Two Rivers Mfg. Co.*, 109 U.S. 117.
Atlantic Works v. *Brady*, 107 U.S. 192.
Peters v. *Active Mfg Co.*, 129 U.S. 530, 541.
Day v. *Fairhaven & Westville Co.*, 132 U.S. 98, 102.
Watson v. *Cincinnati R.R. Co.*, 132 N.S. 161, 167.
Roger v. *Roth*, 132 U.S. 201, 206.

QUESTION AT ISSUE.

The question fairly at issue in this case, in view of the state of the art, is this: Edge trimming and edge burnishing machines were machines substantially alike in construction and used for substantially similar purposes.

There were in edge trimming and burnishing machines two forms of tool, one a rotating tool and the other a reciprocating tool.

There were also two forms of presentation of the sole edge to the tool; one by hand, and the other upon the jack.

Each form of presentation was well known in both classes